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USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK. VOLUME 93. RA-5C AIR--ETC(U)
JUN 77

UNCLASSIFIED

AMRL-TR-75-50-VOL-93

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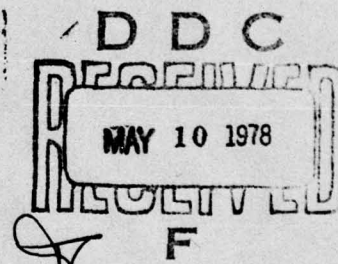


USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK

Volume 93

RA-5C Aircraft, Far-Field Noise

JUNE 1977



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AEROSPACE MEDICAL RESEARCH LABORATORY
AEROSPACE MEDICAL DIVISION
AIR FORCE SYSTEMS COMMAND
WRIGHT-PATTERSON AIR FORCE BASE, OHIO 45433

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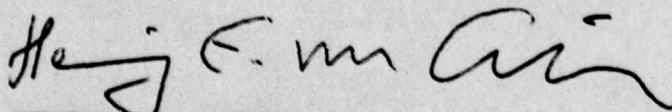
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This technical report has been reviewed and is approved for publication.

FOR THE COMMANDER



HENNING E. VON GIERKE

Director

Biodynamics and Bioengineering Division
Aerospace Medical Research Laboratory

SECURITY CLASSIFICATION OF THIS PAGE (When Data Entered)

REPORT DOCUMENTATION PAGE		READ INSTRUCTIONS BEFORE COMPLETING FORM	
1. REPORT NUMBER 14 AMRL-TR-75-58-VOL-93	2. GOVT ACCESSION NO.	3. RECIPIENT'S CATALOG NUMBER 9 Technical rept.	
4. TITLE (and Subtitle) 6 USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK, RA-5C Aircraft, Far-Field Noise. <i>Volume 93.</i>		5. TYPE OF REPORT & PERIOD COVERED Volume 93 of a series	
7. AUTHOR(s)		6. PERFORMING ORG. REPORT NUMBER	
9. PERFORMING ORGANIZATION NAME AND ADDRESS Aerospace Medical Research Laboratory Aerospace Medical Division, Air Force Systems Command, Wright-Patterson AFB OH		8. CONTRACT OR GRANT NUMBER(s) 17 04	
10. PROGRAM ELEMENT, PROJECT, TASK AREA & WORK UNIT NUMBERS 62202F 16 7231-04-33		11. REPORT DATE 11 Jun 77	
11. CONTROLLING OFFICE NAME AND ADDRESS Same as above		12. NUMBER OF PAGES 101 12 1 01 p	
14. MONITORING AGENCY NAME & ADDRESS (if different from Controlling Office)		15. SECURITY CLASS. (of this report) Unclassified	
16. DISTRIBUTION STATEMENT (of this Report) Approved for public release; distribution unlimited.		15a. DECLASSIFICATION/DOWNGRADING SCHEDULE	
17. DISTRIBUTION STATEMENT (of the abstract entered in Block 20, if different from Report)			
18. SUPPLEMENTARY NOTES			
19. KEY WORDS (Continue on reverse side if necessary and identify by block number) Noise RA-5C Aircraft Noise Environments Bioenvironmental Noise Aircraft			
20. ABSTRACT (Continue on reverse side if necessary and identify by block number) The USN RA-5C is a reconnaissance/attack aircraft powered by two J79-GE-8 turbojet engines. This report provides far-field measured and extrapolated data defining both physical and psycho-acoustic measures of the bioacoustic environments produced by this aircraft operating on a ground runup pad for four engine/power conditions. Far-field data measured at 19 locations are normalized to standard meteorological conditions and extrapolated from 75-			

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8000 meters to derive sets of equal-value contours as a function of angle and distance from the source. These contours are measures of: overall and band sound pressure levels, C-weighted and A-weighted sound levels, preferred speech interference level, perceived noise level, and limiting times for total daily exposure of personnel with and without standard Air Force ear protectors. Refer to Volume 1 of this handbook, "USAF Bioenvironmental Noise Data Handbook, Vol 1: Organization, Content and Application", AMRL-TR-75-50(1) 1975, for discussion of the objective and design of the handbook, the types of data presented, measurement procedures, instrumentation, data processing, definitions of quantities, symbols, equations, applications, limitations, etc.

PREFACE

This report was prepared by the Biodynamic Environment Branch, Aerospace Medical Research Laboratory, under Project/Task 723104, Measurement and Prediction of Noise Environments of Air Force Operations.

The author gratefully acknowledges Mr. John Cole for his assistance in preparing this report, Capt Nick Farinacci, Mr. Harald Hille, and Mr. Jerry Speakman for their assistance in acquiring the raw data, Mr. Keith Kettler, Mr. Henry Mohlman and Mr. David Eilerman of the University of Dayton for assistance in the mechanics of data processing, and Mrs. Peggy Massie and Mr. Mike Patterson for assistance in typing and preparation of the graphics.

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INTRODUCTION

The USN RA-5C is a reconnaissance/attack aircraft powered by two J79-GE-4 turbojet engines. The aircraft was manufactured by the Columbus Division of Rockwell International and the engines by the General Electric Company.

This volume provides measured and extrapolated data defining bioacoustic environments produced by this aircraft during ground runup operations. Such data are essential to evaluate ear protection requirements, limiting personnel exposure times, voice communication capabilities, and annoyance problems associated with ground runups of the RA-5C aircraft.

This volume is one of a series published by the Aerospace Medical Research Laboratory (AMRL) under the same report number (AMRL-TR-75-50) as a multi-volume handbook that quantifies the noise environments produced at flight/ground crew locations and in surrounding communities by operations of military aircraft and ground support equipment. The far-field, community-type noise data in the handbook describe the noise produced during *ground operations* of aircraft, ground support equipment, and other ground-based equipment or facilities.

Volume 1 of this handbook discusses the objectives and design of the handbook, the types of data presented, measurement procedures, instrumentation, data processing, definitions of quantities, symbols, equations, applications, limitations, etc. Volume 2 provides a method and data for adjusting the handbook's far-field noise data, which are for standard meteorological conditions (15°C temperature, 70% rel humidity, 0.760 meters Hg barometric pressure), to derive comparable data for other meteorological conditions. *Refer to Volumes 1 and 2* (references 1 and 2) for such information because it is not repeated in other handbook volumes.

A cumulative index lists those aerospace systems contained in the handbook, and identifies the specific volumes containing each type of environmental noise data available (i.e., inflight/flight crew and passenger noise, near-field/ground crew noise, far-field/community noise). Volume numbers are assigned sequentially as individual volumes are published. This index is periodically updated as individual volumes are published and is available upon request from AMRL/BBE, Wright-Patterson AFB, OH 45433. Organizations on the distribution list for the handbook will automatically receive a copy of each updated index.

Direct any questions concerning the technical data in this report and other handbook volumes to: AMRL/BBE, Wright-Patterson AFB, OH 45433; AUTOVON 78-53675 or 78-53664; Commercial (513) 255-3675 or (513) 255-3664.

1. Cole, John N., *USAF Bioenvironmental Noise Data Handbook Volume 1: Organization, Content and Application*, AMRL-TR-75-50 (1), Aerospace Medical Research Laboratory, Wright-Patterson Air Force Base, Ohio, 1975.
2. Cole, John N., *USAF Bioenvironmental Noise Data Handbook, Volume 2: Procedure to Evaluate Effects of Non-standard Meteorological Conditions on Far-Field Noise*, AMRL-TR-75-50 (2), Aerospace Medical Research Laboratory, Wright-Patterson Air Force Base, Ohio, 1975.

FAR-FIELD NOISE

MEASUREMENTS

AMRL acquired the far-field data during a 1-hour test period thus keeping similar meteorological conditions throughout the test. Figure 1 shows the ground runup area (taxiway), ground cover, aircraft orientation and microphone measurement sites on the semicircle. The center of the 75 meter radius semicircle used in surveying the J79-GE-4 engines was on the ground directly below the intersection of the aircraft's centerline and the plane passing through both engines' exhaust-nozzle exits. The ground runup area did not have a blast deflector; therefore, the engines' exhausts were in a "free-flow" condition.

Table 1 provides cockpit readouts of engine characteristics (RPM, fuel flow, etc.) for each power setting used in the far-field tests. Also listed in this table are the surface meteorological conditions during data acquisition.

All microphone measurement sites are in the acoustic far-field of the source where the sound wave-fronts spherically diverge and the noise source may be regarded as a point source.

A portable microphone/tape-recorder sytem was used to sequentially record the noise at each far-field location. The microphone was attached to a hand-held pole, pointed at the source (0° angle of incidence) and vertically scanned from 0.5 to 3 meters for a period of 5-10 seconds during data acquisition at each microphone location. These samples were then time-integrated to derive a root-mean-square sound pressure level. Vertical scanning and time-integrating together reduce anomalies frequently present in data acquired by a fixed height microphone.

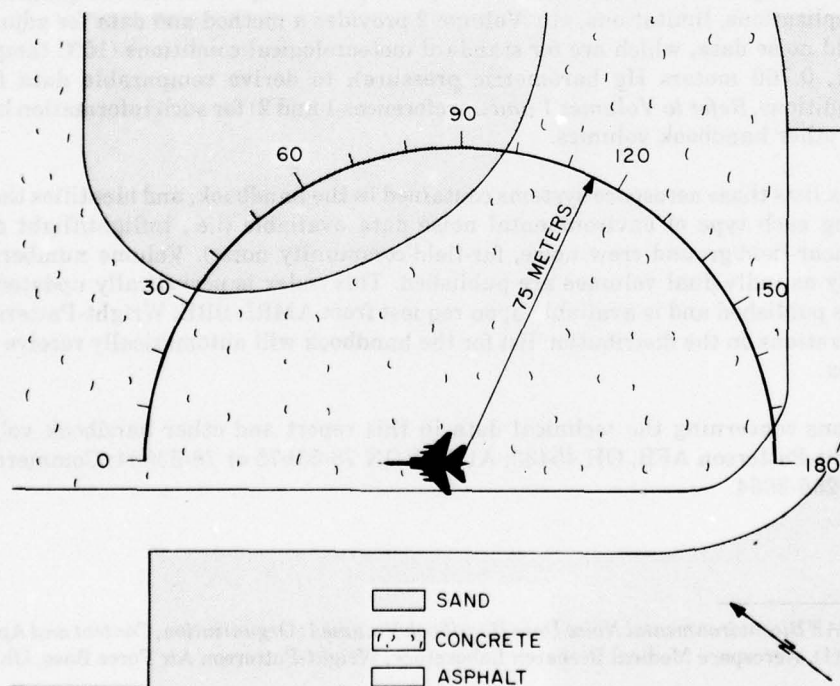


Figure 1. Far-Field Measurement Locations on the Taxiway at ALF, San Clemente Island

TABLE 1

TEST CONDITIONS FOR FAR-FIELD NOISE MEASUREMENTS

RA-5C Aircraft, Ground Runups, ALF, San Clemente Island
Tail #149304, 19 May 1973

Aircraft Engine Operation

Idle	#2 (Starboard) Engine 65 % RPM 400 C, Exhaust Gas Temperature 1000 LBS/HR, Fuel Flow
80% Runup	#2 (Starboard) Engine 80 % RPM 375 C, EGT 2000 LBS/HR, FF
Military	#2 (Starboard) Engine 100 % RPM 630 C, EGT 7800 LBS/HR, FF
Afterburner	#2 (Starboard) Engine 100 % RPM 630 C, EGT 44,500 LBS/HR, FF

Meteorology

Temperature	15.6 C
Bar Pressure	0.761 M Hg
Rel Humidity	84 %
Wind — Speed	2.1 M/Sec (4 KTS)
— Direction	240 Deg

RESULTS

Table 2 lists the overall and 1/3 octave band SPL measured at the far-field locations under meteorological conditions at the time of test. Data in all other figures and tables are based on these levels. These data were normalized to 100 meters distance and standard meteorological conditions (15 C temperature, 70% relative humidity, 0.760 meter Hg barometric pressure) and used to derive the graphic data in Figure 2 which provides a compact summary of the far-field noise characteristics of the RA-5C aircraft in a standard format.

Figure 3 and Table 3 present two basic acoustic measures, the acoustic power level and the directivity index, respectively. The acoustic power level describes the power radiated by the source as a function of frequency. The directivity index is a standard acoustical engineering measure that describes the geometric way in which the source radiates this power as a function of both frequency and angle from source. These basic source measures are primarily of interest for acoustical engineers and noise generation/control specialists.

Estimates of the noise levels for intermediate power settings (e.g., 85% RPM) and/or different number of engines operating (e.g., two engines) can be determined as explained in Volume 1 of this handbook.

Figures 4 through 10 are sets of equal noise contours describing seven different measures of noise as a function of angle and distance from the source for standard day meteorology. They are respectively, overall sound pressure level, C-weighted sound level, A-weighted sound level, perceived noise level, speech interference level, permissible exposure times for personnel and octave band sound pressure levels.

Data excessively influenced by spurious background/electronic noise were eliminated from all figures and tables. No data are presented at the 160/170/180 locations for all power settings above idle power because of turbulent air flow behind the aircraft. Typically, the A-weighted levels for these angles are 5 to 20 dBA below the level measured at the 150 degree location.

Test personnel performed noise surveys during quiet periods when the background noise was minimal, e.g., early in the morning when no other aircraft or engine test stands were operating. Data eliminated because they were near the background/electronic noise were generally not significant because the levels were so low (e.g., Table 2, idle power).

Volume 2 of the handbook describes the influence of meteorology on far-field noise environments, and provides, if required, the factors necessary to adjust the handbook's standard meteorological day data.

TABLE: MEASURED SOUND PRESSURE LEVEL (DB)																
1/3 OCTAVE BAND																
DISTANCE = 75 METERS																
NOISE SOURCE/SUBJECT:																
OPERATION:																
RA-5C AIRCRAFT																
J79-GE-8C ENGINE																
FAR FIELD NOISE																
FREQ																
(HZ)																
ANGLE (DEGREES)																
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180																
25	69<	69<	71<	69<	71<	71<	72<	72<	71<	73<	73<	75<	74<	71<	70<	69<
31.5	77	78	80	81	83	82	83	82	84	83	85	84	82	79	78	77
40	81	82	83	84	86	85	85	86	87	88	88	87	86	81	79	77
50	72	72	73	77	77	77	77	78	80	78	77	77	77	74	70	66<
63	67<	69<	71	73	73	73	73	72	72	72	75	75	78	74	67<	63<
80	70	72	74	74	71	73	73	70	73	76	77	79	78	73	68	55<
100	70	71	73	73	73	72	71	69	72	73	76	78	75	68	55<	58<
125	71	72	73	74	75	72	72	71	74	78	79	81	83	78	69	60<
160	69	72	73	74	71	70	70	72	76	78	81	82	83	77	67	59<
200	69	70	71	69	68	65	64	65	69	71	76	78	81	74	65	54<
250	72	72	73	71	68	67	68	69	70	72	76	77	79	73	66	53<
315	74	75	73	69	67	67	67	69	71	77	79	80	80	73	64	53<
400	75	76	74	71	70	69	68	69	70	70	76	78	79	73	64	52
500	77	76	72	72	70	68	65	65	66	67	71	74	76	67	60	50
630	76	75	73	72	69	68	64	64	63	63	68	73	74	62	58	48<
800	77	75	74	71	71	69	64	63	65	65	70	72	70	63	59	50
1000	77	74	74	72	70	69	64	63	64	64	68	69	67	64	57	48
1250	77	75	76	75	74	70	65	63	63	63	68	70	66	63	58	48
1600	91	92	92	87	84	83	74	70	67	66	67	70	69	68	66	55
2000	85	86	86	83	81	79	73	69	66	63	65	68	67	66	63	55
2500	83	83	84	82	80	74	70	66	62	64	66	64	65	63	60	53
3150	78	77	78	76	75	74	68	66	62	58	60	62	61	63	59	48
4000	79	78	79	77	76	75	70	66	63	59	62	63	62	64	60	57
5000	76	75	76	75	73	73	67	65	61	60	64	64	64	59	56	48
6300	73	72	72	71	69	69	64	62	60	60	64	64	63	58	54	47
8000	71	69	70	69	67	66	62	59	58	57	61	61	60	56	52	44<
10000	66	65	65	62	62	58	56	54	54	57	58	57	57	52	48<	41<
OVERALL	94	94	95	92	92	90	89	89	90	90	92	92	92	87	83	81
																82
																63

< LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

TABLE: MEASURED SOUND PRESSURE LEVEL (DB)																	IDENTIFICATION:		
1/3 OCTAVE BAND																	OMEGA 1.4		
DISTANCE = 75 METERS																	TEST 75-002-002		
NOISE SOURCE/SUBJECT:																	RUN 02		
(OPERATION:																	METEOROLOGY:		
(80% RPM																	TEMP = 16 C		
(SINGLE ENGINE																	BAR PRESS = .761 M HG		
(FREE FLOW																	REL HUMID = 84 %		
RA-5C AIRCRAFT																	05 MAY 75		
J79-GE-8C ENGINE																	PAGE 2		
FAR FIELD NOISE																			
FREQ																			
(HZ)																			
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180																			
25 69< 68< 67< 70< 70< 70< 69< 69< 71< 71< 72< 72< 74< 77< 77< 78																			
31.5 75< 75< 77 77 77 76 74< 78 78 79 78 78 80 80 80 79																			
40 75 77 77 80 77 77 78 80 83 83 81 82 85 85 83 84																			
50 71 72 75 76 77 76 78 78 80 83 84 84 85 87 85																			
63 72 75 77 78 77 77 80 80 82 84 84 87 89 90 85																			
80 73 75 78 78 78 78 79 80 81 83 83 85 88 91 92 84																			
100 76 79 82 81 82 82 82 82 83 85 85 88 90 93 85 84																			
125 76 79 83 84 82 81 82 82 85 87 89 91 93 95 94 82																			
160 76 81 82 84 82 81 82 83 84 86 88 89 91 92 92 77																			
200 75 79 80 81 81 80 81 83 84 84 88 89 90 90 89 75																			
250 77 79 81 83 82 83 83 85 85 87 89 90 90 88 87 73																			
315 81 82 85 88 85 88 87 89 90 88 93 92 91 88 87 73																			
400 91 92 100 95 90 92 89 88 88 87 95 94 90 92 91 80																			
500 88 95 105 102 96 99 98 96 98 96 101 100 97 99 97 84																			
630 80 82 85 87 88 87 88 90 91 89 93 92 88 84 80 69																			
800 79 80 82 83 84 84 82 84 86 84 89 88 85 77 74 64																			
1000 79 77 82 81 83 82 81 85 85 83 87 85 82 77 72 62																			
1250 81 79 81 80 80 80 78 82 82 81 84 83 80 70 68 60																			
1600 90 85 84 83 82 81 79 80 80 79 81 81 77 69 66 59																			
2000 97 96 94 92 88 84 81 80 78 80 78 77 71 68 62																			
2500 89 90 89 91 89 88 83 81 78 76 77 78 74 69 65 59																			
3150 85 84 85 83 83 81 77 77 74 74 75 73 66 63 56																			
4000 87 88 89 88 86 84 80 80 78 75 75 75 73 66 64 58																			
5000 84 84 85 85 84 83 79 78 76 74 74 70 65 62 57																			
6300 81 82 82 82 80 79 74 74 72 71 71 73 68 63 61 57																			
8000 78 79 79 78 76 76 72 71 70 68 70 70 67 62 60 55																			
10000 74 74 75 75 73 73 68 58 67 64 66 66 64 58 57 52																			
OVERALL 100 101 107 104 100 102 100 99 101 100 104 104 102 103 103 93																			
< LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.																			

< LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

TABLE: MEASURED SOUND PRESSURE LEVEL (DB)																
1/3 OCTAVE BAND																
DISTANCE = 75 METERS																
NOISE SOURCE/SUBJECT:																
(OPERATION:)																
(MILITARY POWER)																
(100% RPM)																
(SINGLE ENGINE)																
(FREE FLOW)																
RA-5C AIRCRAFT																
J79-GE-8C ENGINE																
FAR FIELD NOISE																
FREQ																
(HZ)																
ANGLE (DEGREES)																
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180																
25	76<	74<	74<	75<	77<	78	76<	80	77<	81	82	85	91	93	94	95
31.5	79	77	78	80	81	81	81	82	82	84	84	88	92	95	96	96
40	80	79	80	84	83	83	86	86	86	87	88	90	94	99	100	100
50	80	78	79	81	82	83	83	86	86	87	89	91	96	100	101	98
63	81	81	82	85	84	85	86	88	86	89	92	95	99	103	103	99
80	81	80	84	86	85	86	86	88	89	92	95	99	105	107	105	100
100	85	84	88	89	88	88	90	90	90	93	98	104	110	111	107	99
125	85	86	88	90	90	90	90	90	93	96	99	107	114	113	108	95
160	87	90	91	92	91	91	92	93	92	97	101	107	114	114	107	92
200	88	91	91	92	92	91	92	92	94	95	102	109	115	114	107	95
250	90	92	91	93	93	92	92	94	94	98	104	110	115	114	107	96
315	91	91	91	94	93	93	94	94	97	98	105	111	115	111	104	93
400	94	91	94	95	95	95	95	96	98	98	105	110	115	108	102	93
500	93	91	96	98	96	97	96	95	98	98	106	110	113	107	101	93
630	92	93	95	97	98	99	97	96	99	98	106	110	112	105	100	93
800	93	93	95	98	100	101	98	97	100	100	107	109	110	104	100	95
1000	91	91	94	97	98	99	96	94	97	97	104	107	109	103	98	92
1250	91	90	93	97	98	99	95	95	98	97	103	106	108	101	96	89
1600	92	90	92	96	96	97	95	95	98	97	104	105	106	98	95	87
2000	90	88	90	94	95	96	93	94	97	97	103	104	106	98	93	86
2500	89	87	89	93	93	96	93	92	95	96	101	102	103	95	92	84
3150	86	84	86	90	91	93	90	90	94	95	99	99	101	93	91	81
4000	87	84	86	89	91	93	90	90	93	94	100	99	101	93	90	81
5000	86	84	85	88	89	91	89	88	91	92	97	97	99	91	88	79
6300	83	81	82	85	86	88	85	88	89	94	94	96	96	89	85	76
8000	83	82	81	83	85	86	83	82	85	86	91	92	94	86	83	74
10000	80	79	79	80	81	82	80	78	81	82	88	88	90	83	79	71
OVERALL	103	102	105	107	107	108	107	106	109	110	116	120	124	122	116	109

< LEVEL CORRECTED TO REMOVE BACKGROUND/ELECTRONIC NOISE.

TABLE: MEASURED SOUND PRESSURE LEVEL (DB)																
1/3 OCTAVE BAND																
DISTANCE = 75 METERS																
NOISE SOURCE/SUBJECT:																
OPERATION:																
AFTERBURNER POWER																
100% RPM																
SINGLE ENGINE																
FREE FLOW																
METEOROLOGY:																
TEMP = 16 C																
BAR PRESS = .761 M HG																
REL HUMID = 84 %																
PAGE 2																
IDENTIFICATION:																
OMEGA 1.4																
TEST 75-002-002																
RUN 04																
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FIGURE 1: NORMALIZED FARFIELD NOISE LEVELS

2 DISTANCE = 100 METERS

NOISE SOURCE/SUBJECT:

RA-5C AIRCRAFT
J79-GE-8C ENGINE
FAR FIELD NOISE

OPERATION:

IDLE
65% RPM
SINGLE ENGINE
FREE FLOW

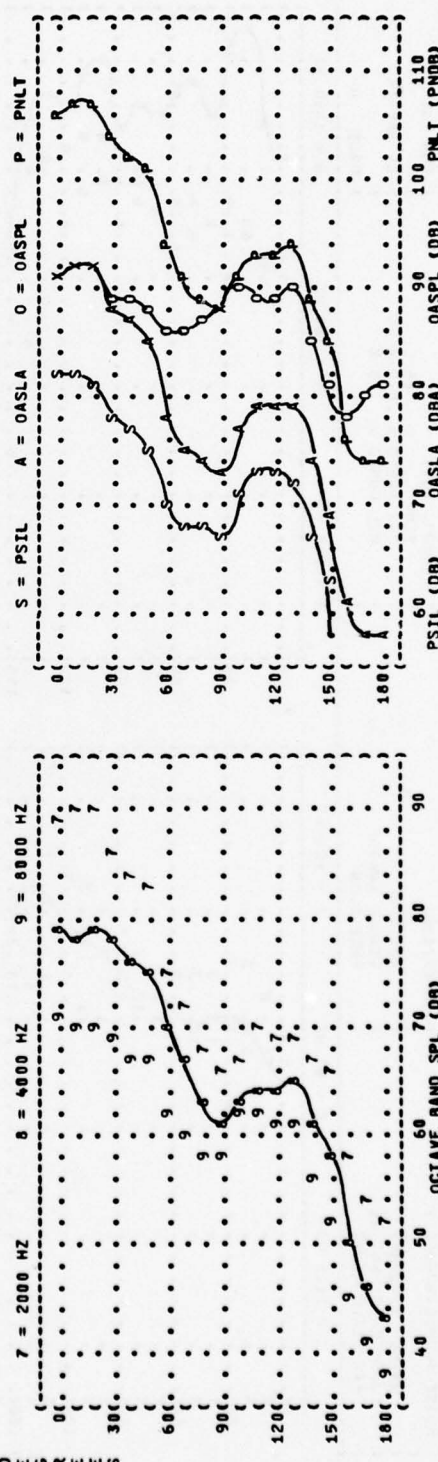
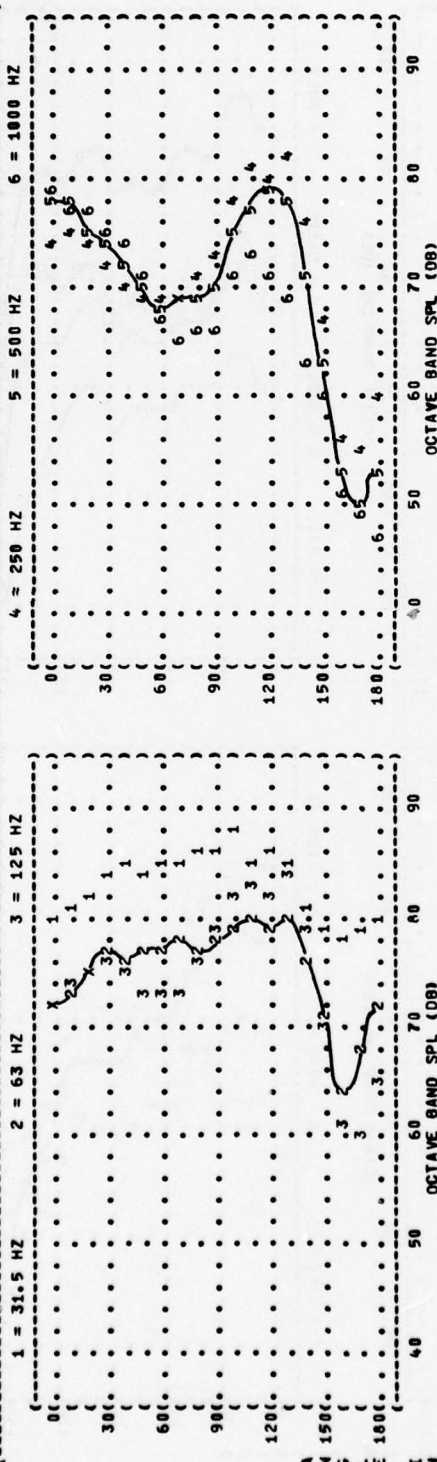
METEOROLOGY:

TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

IDENTIFICATION:

OMEGA 1.4
TEST 75-002-002
RUN 01

PAGE 6



) IDENTIFICATION:
) OMEGA 1.4
) TEST 75-002-002
) RUN 02
)
) METEOROLOGICAL:
) TEMP = 15 C
) BAR PRESS = .760 M HG
) REL HUMID = 70 %
) PAGE 6
)
) NOISE SOURCE/SUBJECT:
) (OPERATION:
) (80% RPM
) (SINGLE ENGINE
) (FREE FLOW
)
) RA-5C AIRCRAFT
) J79-GE-8C ENGINE
) FAR FIELD NOISE

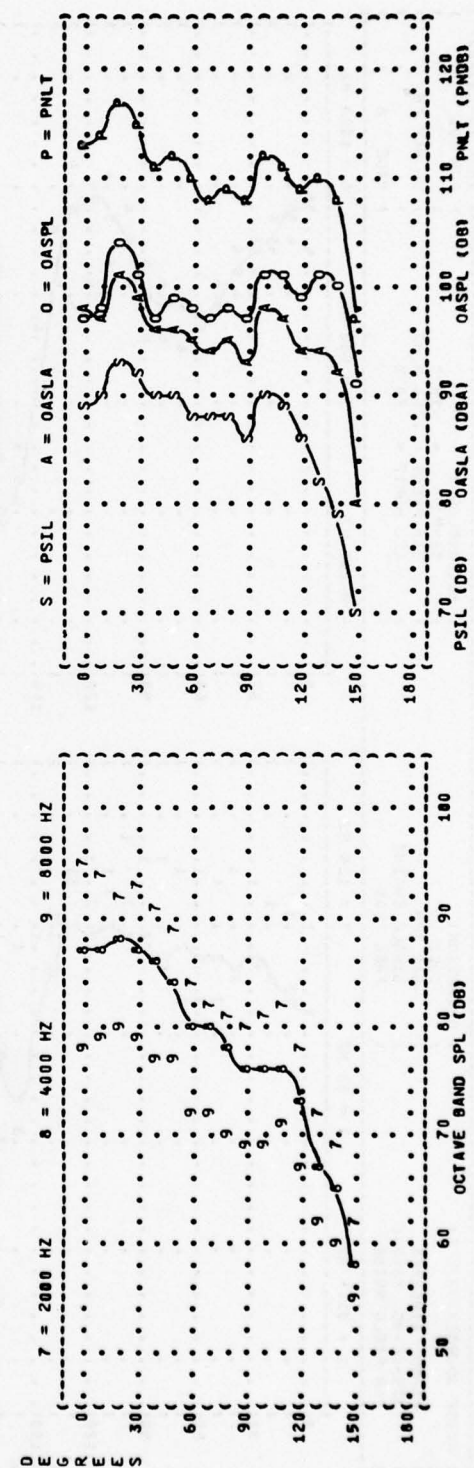
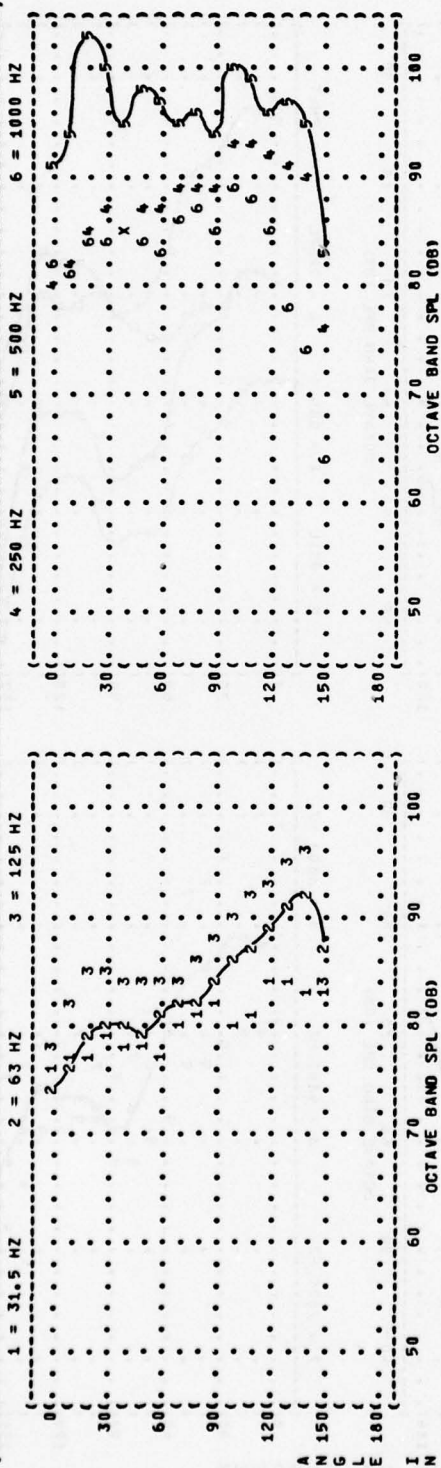


FIGURE 1 NORMALIZED FARFIELD NOISE LEVELS

2 DISTANCE = 100 METERS

NOISE SOURCE/SUBJECT:

RA-5C AIRCRAFT

J79-GE-8C ENGINE

FAR FIELD NOISE

OPERATION:

MILITARY POWER

100% RPM

SINGLE ENGINE

FREE FLOW

METEOROLOGY:

TEMP = 15 C

BAR PRESS = .760 M HG

REL HUMID = 70 %

PAGE 6

IDENTIFICATION:

OMEGA 1.4

TEST 75-002-002

RUN 03

05 MAY 75

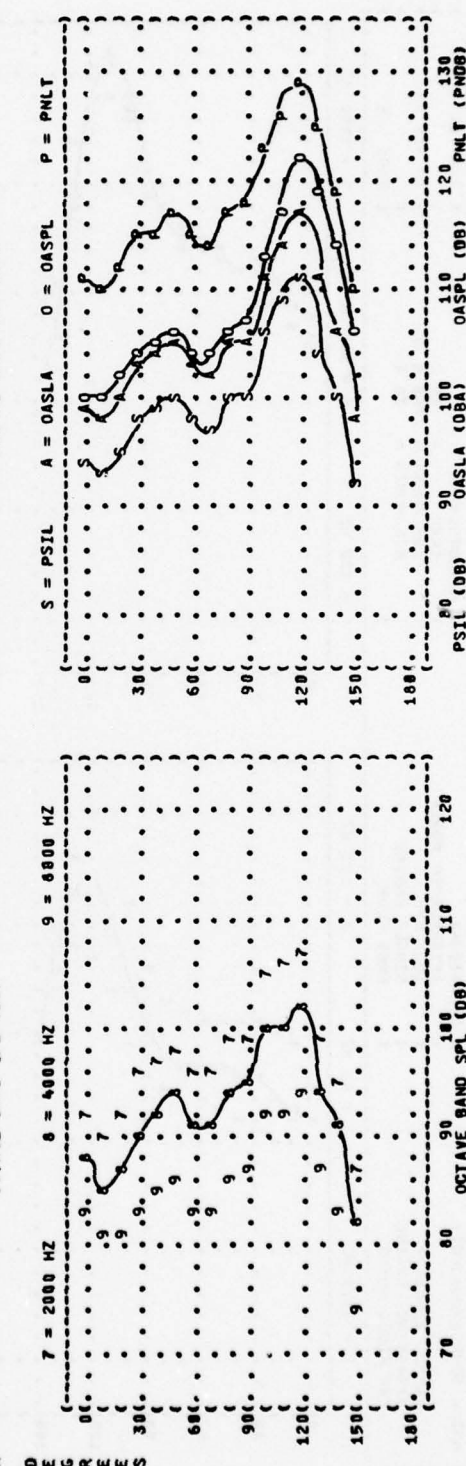
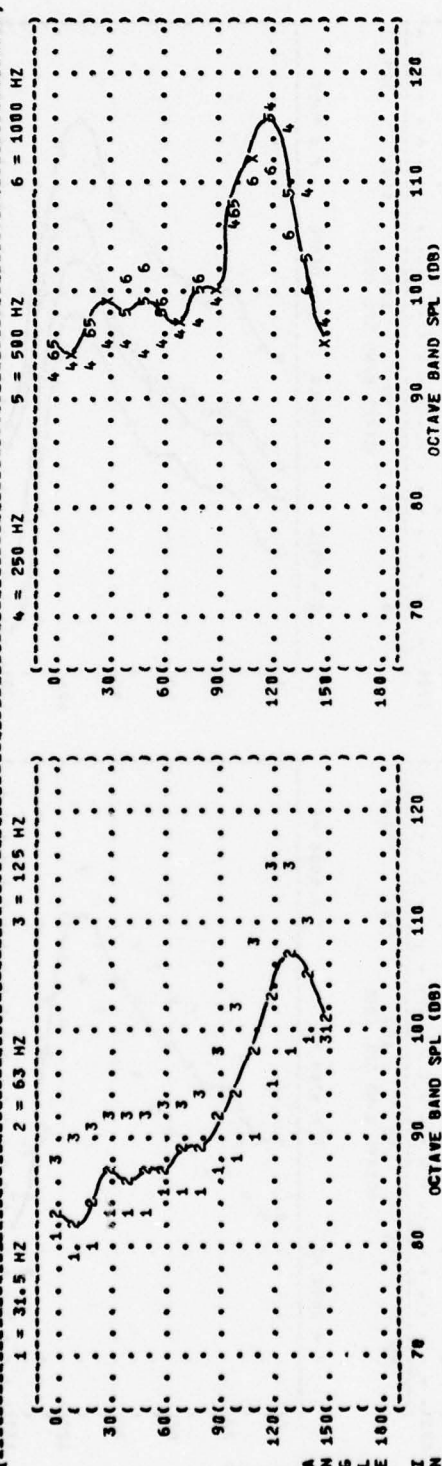


FIGURE 1: NORMALIZED FARFIELD NOISE LEVELS

2 DISTANCE = 100 METERS

NOISE SOURCE/SUBJECT:

RA-5C AIRCRAFT

J79-GE-8C ENGINE

FAR FIELD NOISE

OPERATION:

AFTERBURNER POWER

100% RPM

SINGLE ENGINE

FREE FLOW

METEOROLOGY:

TEMP = 15 C

BAR PRESS = .760 M HG

REL HUMID = 70 %

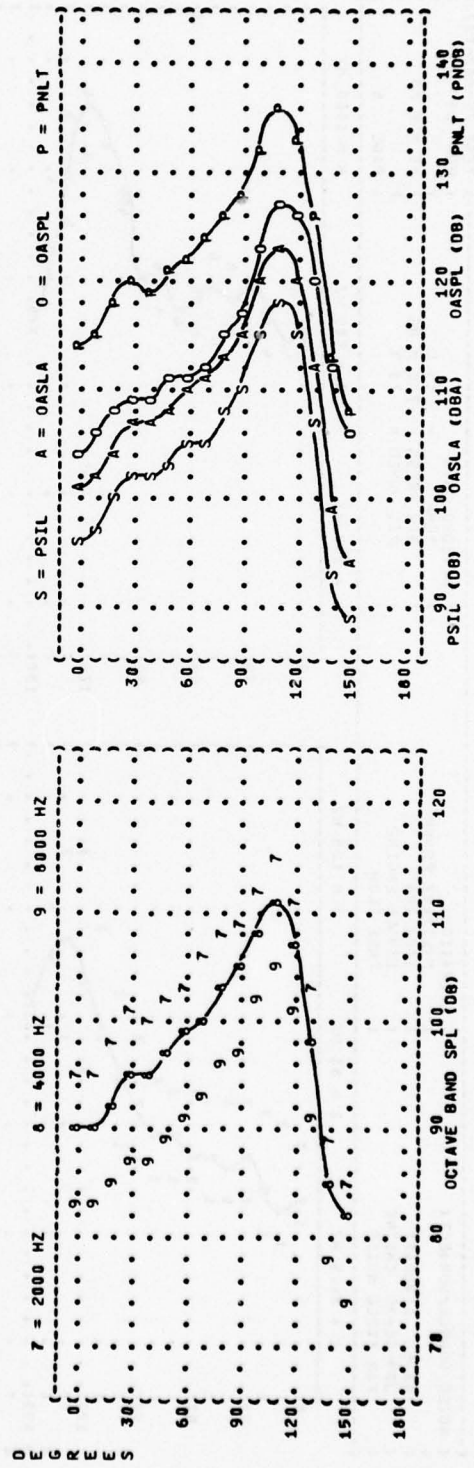
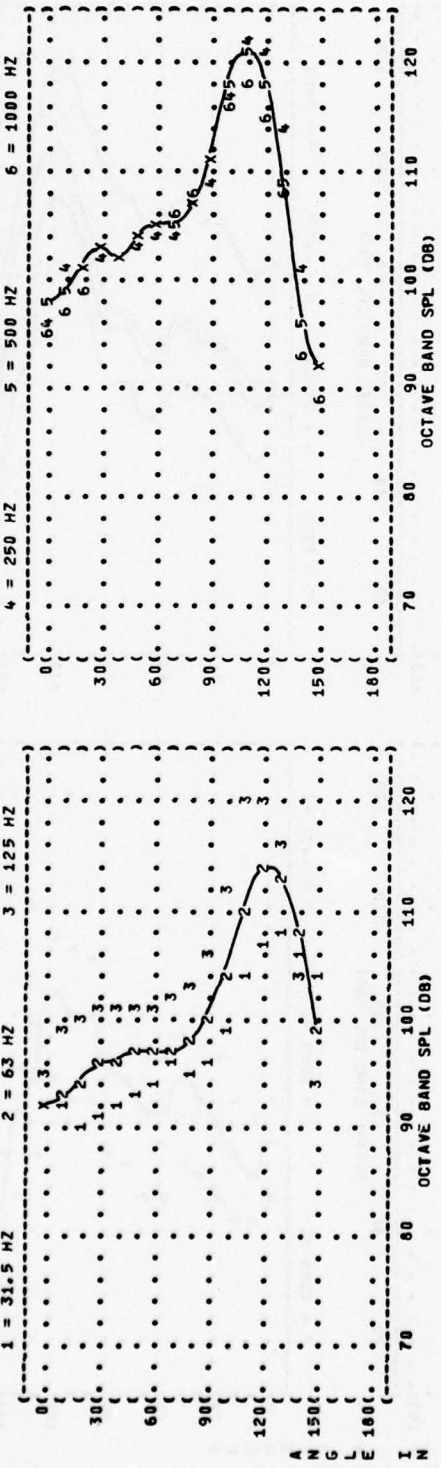
OMEGA 1.4

TEST 75-002-002

RUN 04

05 MAY 75

PAGE 6



3

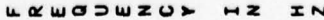


FIGURE: ACOUSTIC POWER LEVEL (PWL) 3

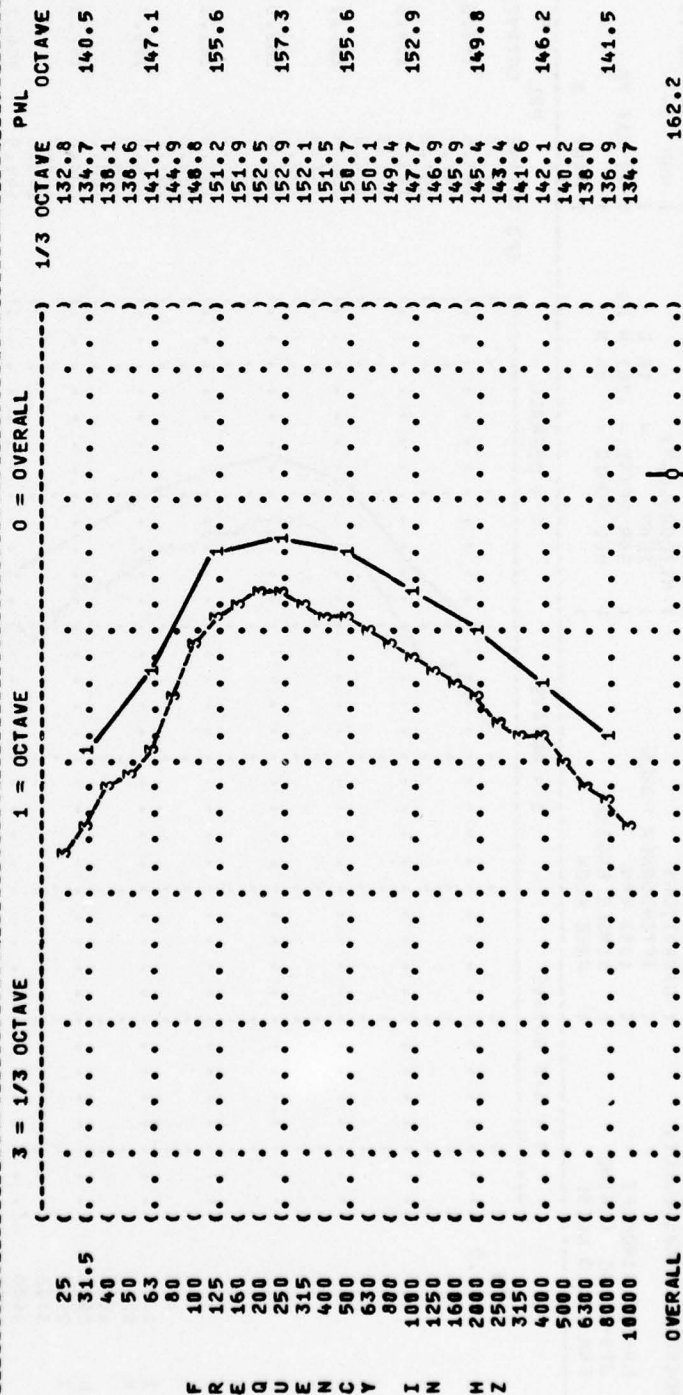
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TEST 75-002-002
RUN 03

NOISE SOURCE/SUBJECT: RA-5C AIRCRAFT
J79-GE-8C ENGINE
FAR FIELD NOISE

OPERATION: MILITARY POWER
100% RPM
SINGLE ENGINE
FREE FLOW

METEOROLOGY: TEMP = 16 C
BAR PRESS = .761 M HG
REL HUMID = 84 %

PAGE 3



((FIGURE: ACOUSTIC POWER LEVEL (PWL)))
 ((3))
 ((NOISE SOURCE/SUBJECT:))
 (((OPERATION:)))
 (((AFTERBURNER POWER)))
 (((100% RPM)))
 (((SINGLE ENGINE)))
 (((FREE FLOW)))
 ((RA-5C AIRCRAFT))
 ((J79-GE-8C ENGINE))
 ((FAR FIELD NOISE))
 ((METEOROLOGY:))
 ((TEMP = 16 C))
 ((BAR PRESS = .761 M HG))
 ((REL HUMID = 84 %))
 ((IDENTIFICATIONS:))
 ((OMEGA 1.4))
 ((TEST 75-002-002))
 ((RUN 04))
 ((05 MAY 75))
 ((PAGE 3))

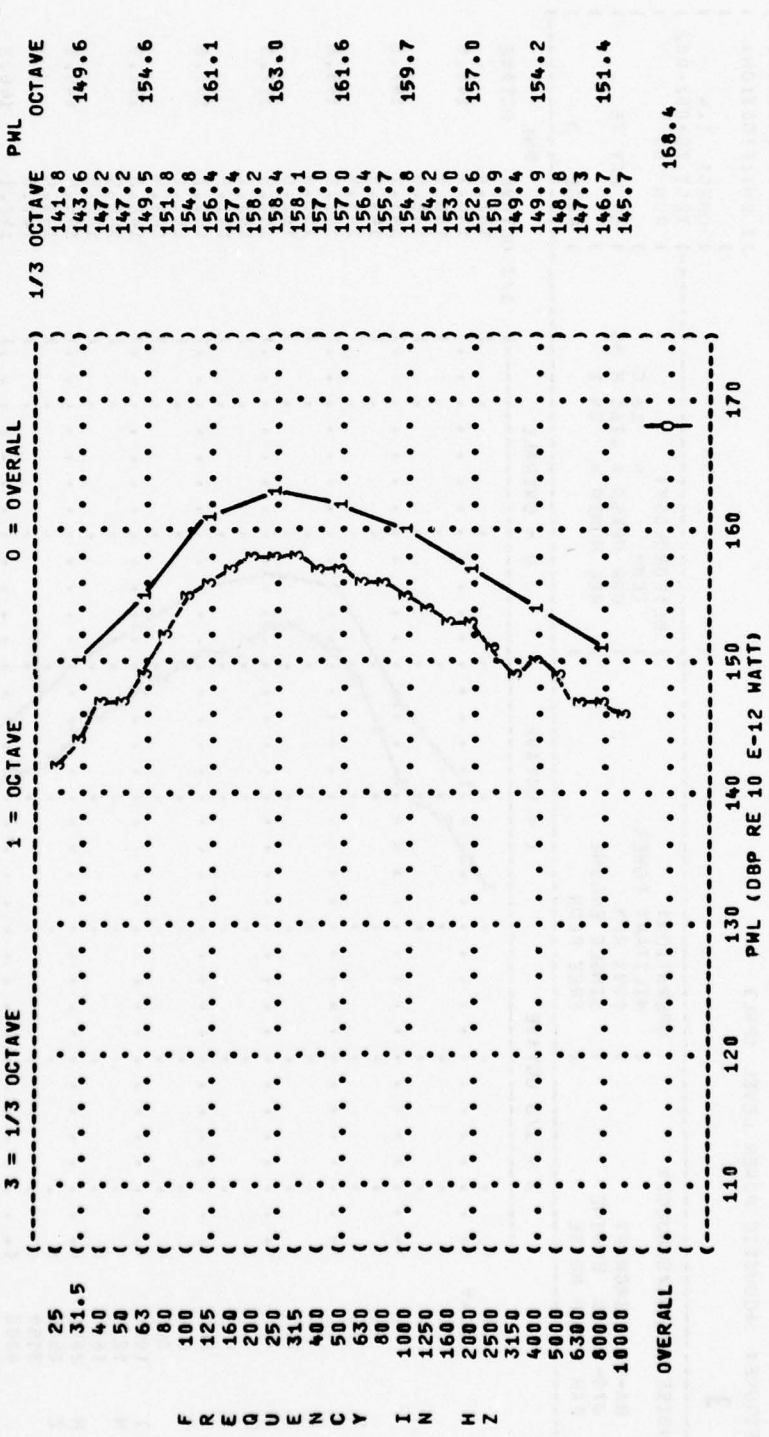
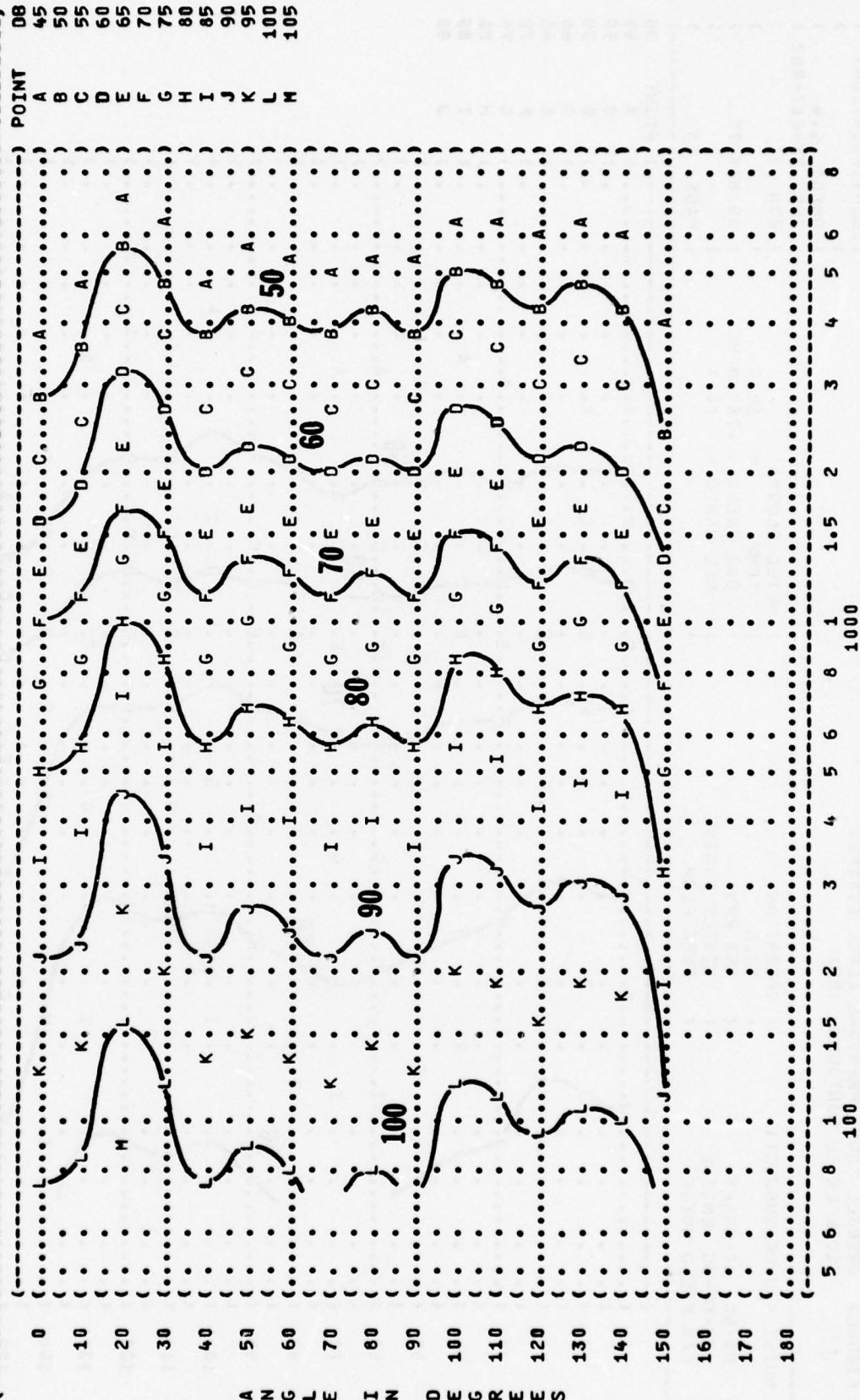


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NOISE SOURCE/SUBJECT:													
(OPERATION:													
(RA-5C AIRCRAFT													
(J79-GE-8C ENGINE													
(FAR FIELD NOISE													
METEOROLOGY:													
TEMP = 16 C													
BAR PRESS = .761 M HG													
REL HUMID = 84 %													
PAGE 4													
TEST 75-002-002													
RUN 02													
OMEGA 1.4													
FREQ (HZ)													
ANGLE (DEGREES)													
1/3 OCTAVE													
25	-4	-5	-5	-3	-3	-2	-3	-4	-2	-2	-1	-1	5
31.5	-2	-3	-1	-1	-2	-2	-4	-0	-0	-1	0	0	4
40	-6	-5	-5	-2	-5	-4	-4	-1	1	-1	1	0	2
50	-11	-10	-7	-6	-5	-6	-4	-4	-3	-2	1	2	1
63	-12	-9	-7	-6	-7	-7	-4	-5	-2	0	0	0	3
80	-12	-10	-7	-7	-7	-7	-6	-5	-4	-2	0	0	6
100	-12	-9	-6	-7	-6	-6	-6	-6	-4	-2	0	0	7
125	-13	-10	-6	-5	-7	-8	-7	-7	-4	-2	0	2	6
160	-11	-6	-5	-3	-5	-6	-5	-4	-3	-1	1	2	5
200	-11	-7	-6	-5	-5	-6	-5	-3	-2	-2	2	3	5
250	-9	-7	-5	-3	-5	-4	-3	-2	-1	0	3	4	3
315	-8	-7	-4	-1	-4	-1	-2	0	1	-1	4	3	-1
400	-1	0	8	3	3	-2	-3	-4	-5	3	2	2	0
500	-10	-3	6	3	-3	1	-0	-3	-1	-3	3	2	-2
630	-9	-7	-4	-2	-1	-2	-1	1	2	0	4	3	-2
800	-5	-4	-2	-1	-0	-1	-0	-0	0	5	3	2	0
1000	-4	-6	-1	-2	-0	-1	-2	2	2	4	2	2	-1
1250	1	-2	1	-1	-0	-0	-2	1	2	1	4	2	-1
1600	10	6	4	3	2	1	-1	0	-0	-1	1	1	-10
2000	10	9	7	8	5	2	-3	-6	-7	-8	-6	-6	-15
2500	5	6	6	8	5	5	-1	-3	-6	-7	-7	-6	-14
3150	7	6	7	5	5	3	-1	-1	-4	-4	-4	-3	-15
4000	6	7	8	7	5	3	-1	-1	-6	-6	-5	-5	-17
5000	5	5	6	6	5	4	0	-1	-3	-5	-5	-9	-17
6300	5	7	7	7	4	3	-1	-2	-3	-4	-3	-7	-14
8000	5	6	6	5	4	4	0	-1	-2	-4	-3	-5	-11
10000	5	5	6	6	4	4	-0	-1	-2	-4	-3	-2	-10
OCTAVE	-5	-4	-4	-2	-3	-3	-4	-1	0	1	-1	0	3
31.5	-12	-10	-7	-6	-6	-7	-5	-4	-4	-2	-0	1	3
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OVERALL	-2	-1	5	2	-2	-0	-1	-2	-1	-2	2	0	1
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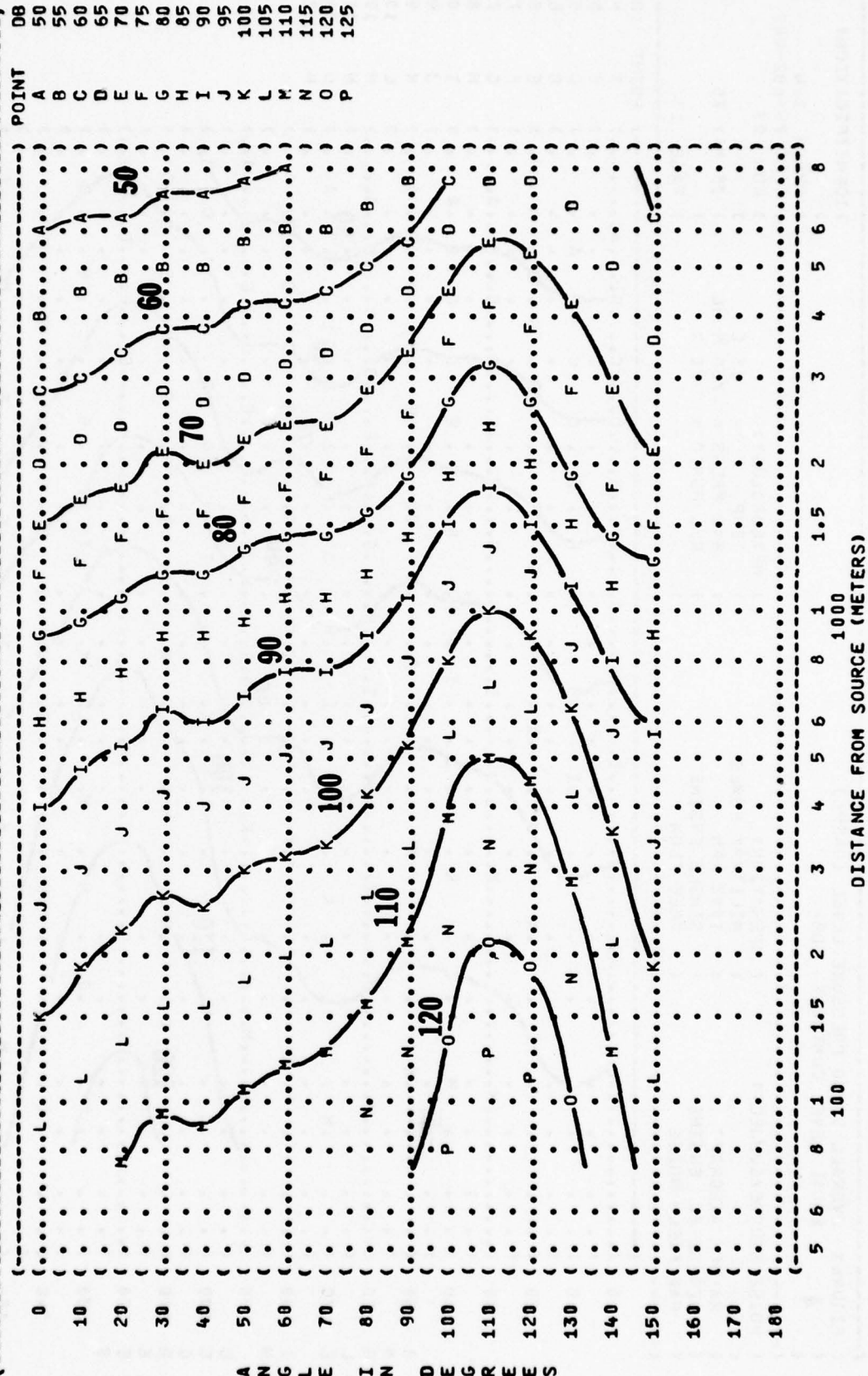
TABLE: DIRECTIVITY INDEX (DB)																	IDENTIFICATION:	
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																	TEST 75-002-002	
NOISE SOURCE/SUBJECT:																	RUN 03	
(OPERATION:)																		
(MILITARY POWER)																		
(100% RPM)																		
(SINGLE ENGINE)																	05 MAY 75	
(FREE FLOW)																	PAGE 4	
FREQ																		
(HZ)																		
0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180																		
ANGLE (DEGREES)																		
1/3 OCTAVE																		
25																		
31.5																		
40																		
50																		
63																		
80																		
100																		
125																		
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2500																		
3150																		
4000																		
5000																		
6300																		
8000																		
10000																		
OCTAVE																		
31.5																		
63																		
125																		
250																		
500																		
1000																		
2000																		
4000																		
8000																		
OVERALL																		
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OVERALL																		
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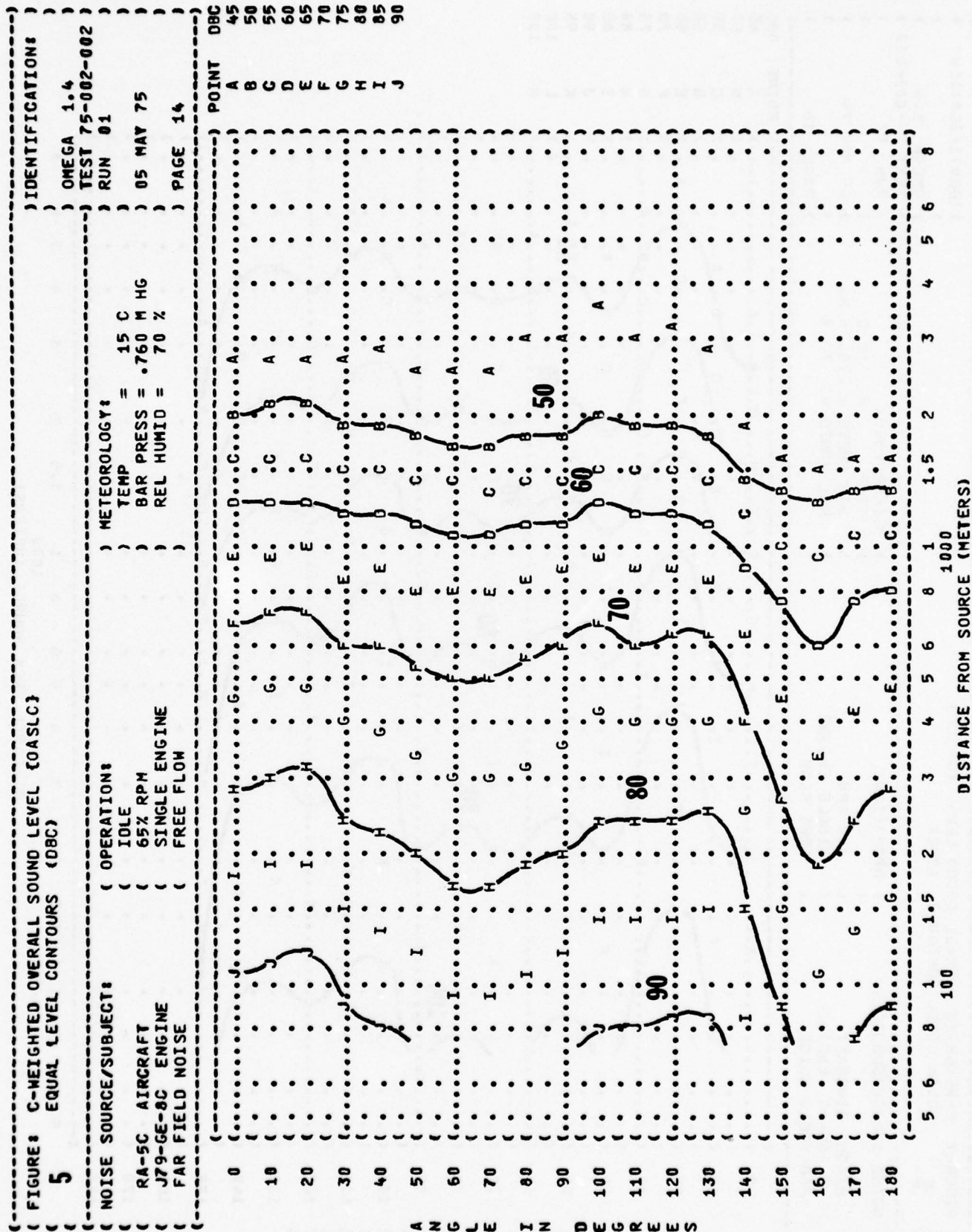
TABLE: DIRECTIVITY INDEX (DB)															IDENTIFICATION:				
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															TEST 75-002-002				
															RUN 04				
NOISE SOURCE/SUBJECT:															METEOROLOGY:				
(OPERATION:															TEMP = 16 C				
(AFTERBURNER POWER															BAR PRESS = .761 M HG				
(100% RPM															REL HUMID = 84 %				
(SINGLE ENGINE																			
(FREE FLOW																			
RA-5C AIRCRAFT															05 MAY 75				
J79-GE-8C ENGINE																			
FAR FIELD NOISE															PAGE 4				
FREQ															ANGLE (DEGREES)				
(HZ)	0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180
1/3 OCTAVE																			
(25	-10	-8	-9	-8	-9	-7	-7	-6	-5	-6	-3	1	3	5	6	5			
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(630	-16	-15	-13	-10	-11	-8	-7	-8	-5	-1	4	7	3	-3	-18	-22			
(800	-17	-14	-12	-10	-9	-8	-7	-6	-4	-1	4	7	3	-3	-19	-22			
(1000	-16	-15	-13	-9	-9	-8	-6	-6	-3	-0	4	7	3	-3	-18	-22			
(1250	-15	-14	-12	-8	-8	-7	-6	-5	-2	1	4	7	3	-4	-18	-23			
(1600	-13	-13	-10	-8	-8	-6	-5	-3	-1	0	4	6	3	-5	-19	-23			
(2000	-14	-14	-11	-8	-8	-6	-6	-3	-1	0	4	7	3	-5	-19	-23			
(2500	-12	-12	-9	-7	-7	-5	-4	-2	0	0	4	6	3	-6	-19	-22			
(3150	-14	-14	-11	-8	-8	-6	-5	-3	-1	1	4	6	3	-6	-19	-22			
(4000	-14	-14	-12	-9	-9	-7	-5	-4	-1	1	4	7	2	-7	-19	-23			
(5000	-15	-14	-12	-10	-9	-7	-6	-4	-1	0	4	7	2	-7	-19	-23			
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(10000	-15	-14	-13	-11	-12	-10	-9	-6	-2	-2	4	8	2	-7	-21	-26			
OCTAVE																			
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(125	-18	-15	-13	-12	-13	-12	-12	-11	-10	-7	-1	7	7	3	-9	-20			
(250	-19	-14	-14	-13	-13	-12	-11	-11	-8	-6	2	7	6	-2	-15	-23			
(500	-16	-15	-12	-11	-11	-9	-8	-9	-6	-2	4	7	4	-4	-17	-21			
(1000	-16	-14	-12	-9	-9	-8	-7	-6	-3	-0	4	7	3	-4	-18	-22			
(2000	-13	-13	-10	-8	-8	-6	-5	-3	-0	0	4	6	3	-5	-19	-23			
(4000	-14	-14	-11	-8	-8	-6	-5	-3	-1	1	4	7	2	-7	-19	-23			
(6000	-15	-15	-13	-10	-8	-7	-5	-4	-1	-0	4	7	3	-7	-20	-24			
(8000	-14	-14	-13	-11	-11	-9	-8	-6	-2	-0	4	7	3	-7	-20	-25			
(10000	-15	-14	-13	-11	-11	-9	-7	-5	-2	-1	4	7	3	-7	-21	-26			
OVERALL																			
(-16	-14	-14	-13	-11	-11	-10	-9	-8	-6	-3	3	7	5	-0	-9	-15			

(FIGURE: OVERALL SOUND PRESSURE LEVEL (OASPL)
 (4 EQUAL LEVEL CONTOURS (DB)
 () IDENTIFICATION:
 () OMEGA 1.4
 () TEST 75-002-002
 () RUN 02
 (NOISE SOURCE/SUBJECT: (OPERATION:) METEOROLOGY:
 () TEMP = 15 C
 (RA-5C AIRCRAFT (80% RPM) BAR PRESS = .760 M HG
 (J79-GE-8C ENGINE (SINGLE ENGINE) REL HUMID = 70 %
 (FAR FIELD NOISE (FREE FLOW)) PAGE 13



(FIGURE: OVERALL SOUND PRESSURE LEVEL (OASPL)
 (4 EQUAL LEVEL CONTOURS (DB)
 () IDENTIFICATION:
 () OMEGA 1.4
 () TEST 75-002-002
 () RUN 04
 (NOISE SOURCE/SUBJECT:) METEOROLOGY:
 () OPERATION:
 () AFTERBURNER POWER
 () 100% RPM
 () RA-5C AIRCRAFT
 () J79-GE-8C ENGINE
 () SINGLE ENGINE
 () FAR FIELD NOISE
 () FREE FLOW
 () TEMP = 15 C
 () BAR PRESS = .760 M HG
 () REL HUMID = 70 %
 () 05 MAY 75
 () PAGE 13





5

OMEGA 1.4

OMEGA 1.4
TEST 75-002-002

RUN 02

METEOROLOGY:

MP = 15 C

TEMP = 15 C

05 MAY 75

PAGE 14

OPERATIONS:

1

80% RPM

SINGLE ENGINE

NOTA 3383

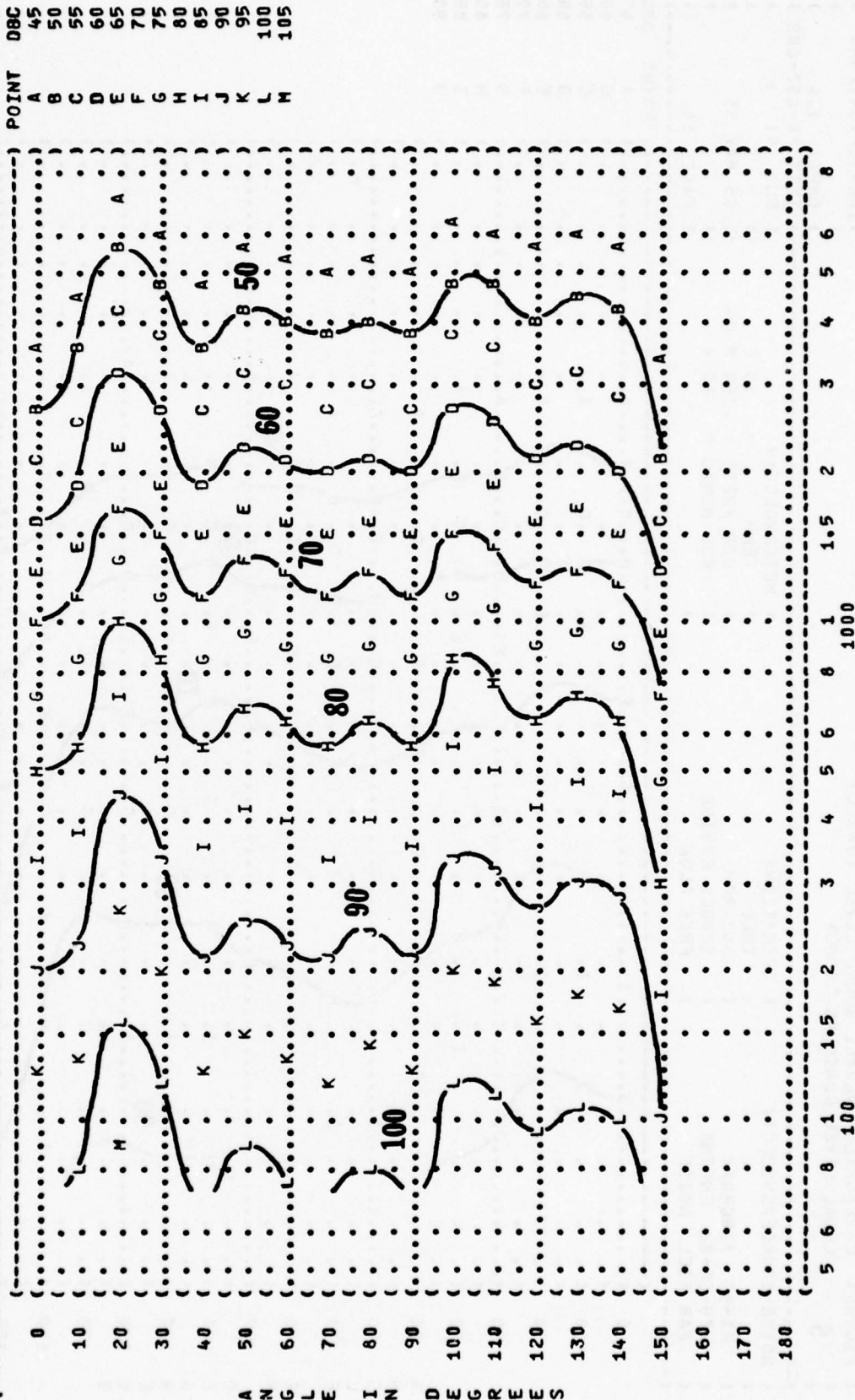
NOISE SOURCE/SUBJECT:

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RA-5C AIRCRAFT

J79-GE-8C ENGINE

FAR FIELD NOISE



DISTANCE FROM SOURCE (METERS)

FIGURE 8: C-WEIGHTED OVERALL SOUND LEVEL {OASLC}
F
EQUAL LEVEL CONTOURS (DBC)

IDENTIFICATIONS:

OMEGA 1.4

TEST 75-002-002

RUN 03

05 MAY 75

PAGE 14

1) METEOROLOGY:

TEMP = 15 C

BAR PRESS = .760 M HG

REL HUMID = 70 %

OPERATION:

(MILITARY POWER

(100% RPM

() SINGLE ENG

NOISE SOURCE/SUBJECT:

RA-5C AIRCRAFT

J79-GE-8C ENGINE

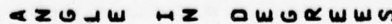
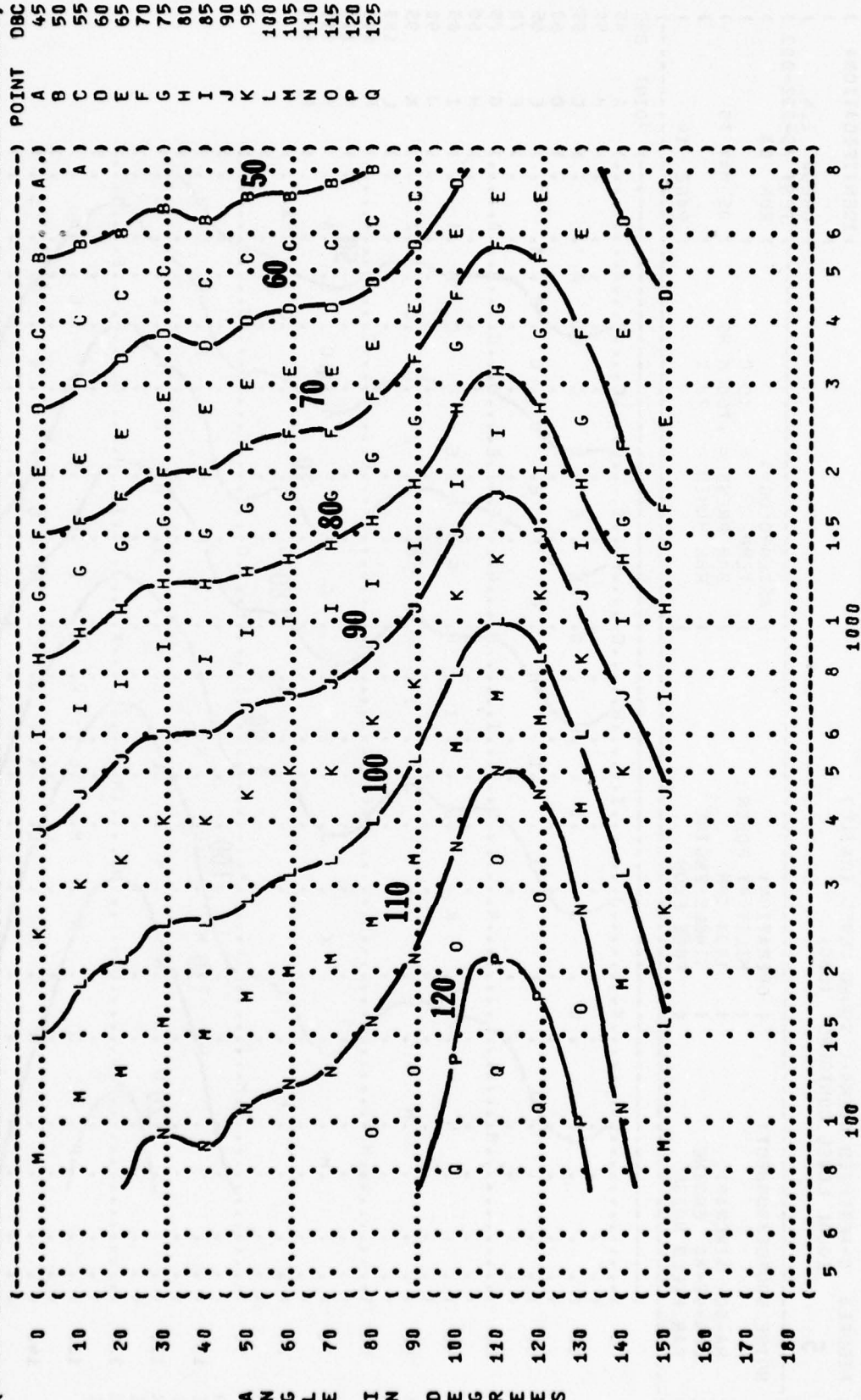
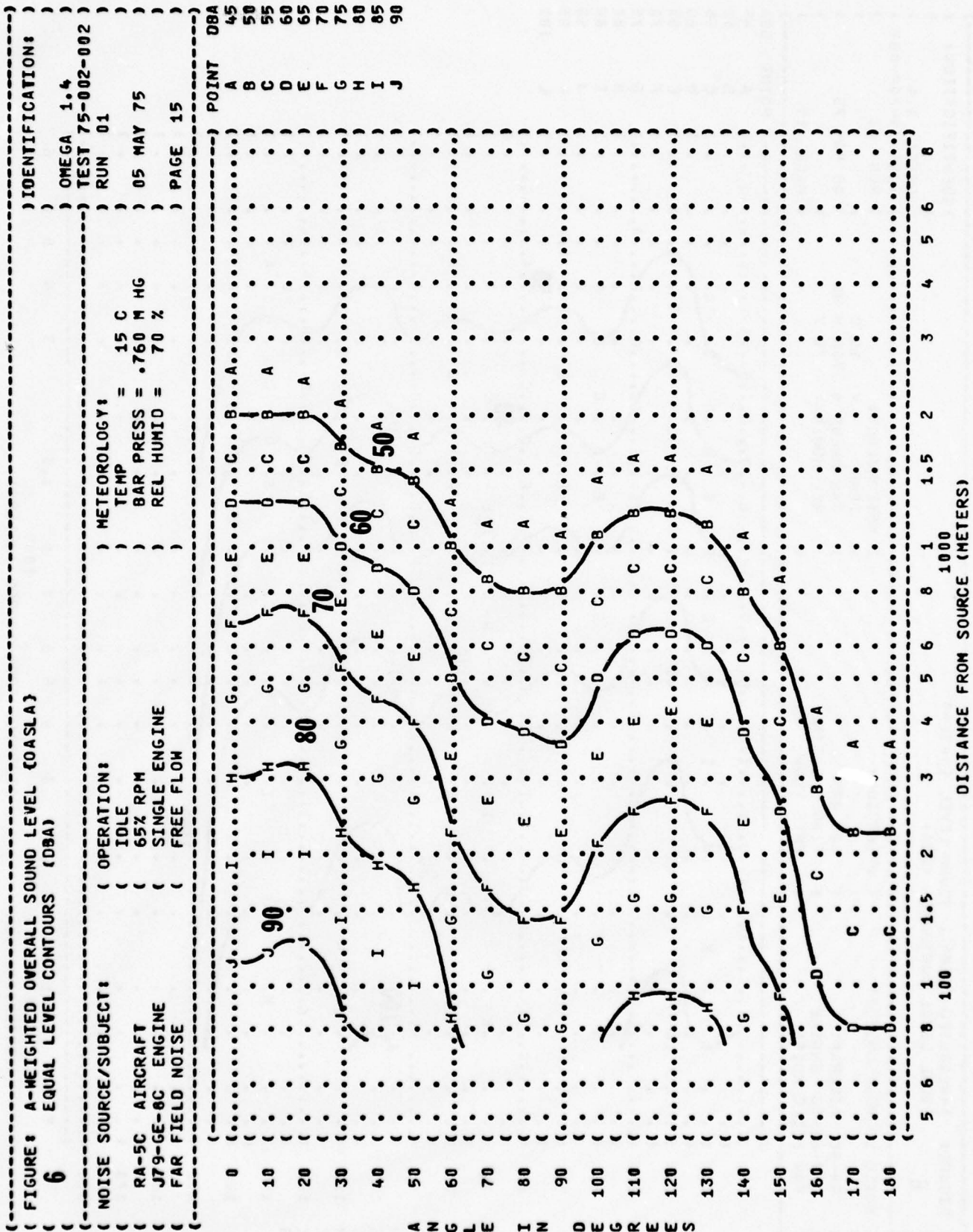


FIGURE: C-WEIGHTED OVERALL SOUND LEVEL (OASLC)
 5
 IDENTIFICATION:
 OMEGA 1.4
 TEST 75-002-002
 RUN 04
 NOISE SOURCE/SUBJECT: METEOROLOGY:
 TEMP = 15 C
 RA-5C AIRCRAFT
 100% RPM
 BAR PRESS = .760 M HG
 J79-GE-8C ENGINE
 SINGLE ENGINE
 REL HUMID = 70 %
 FAR FIELD NOISE
 FREE FLOW
 PAGE 14



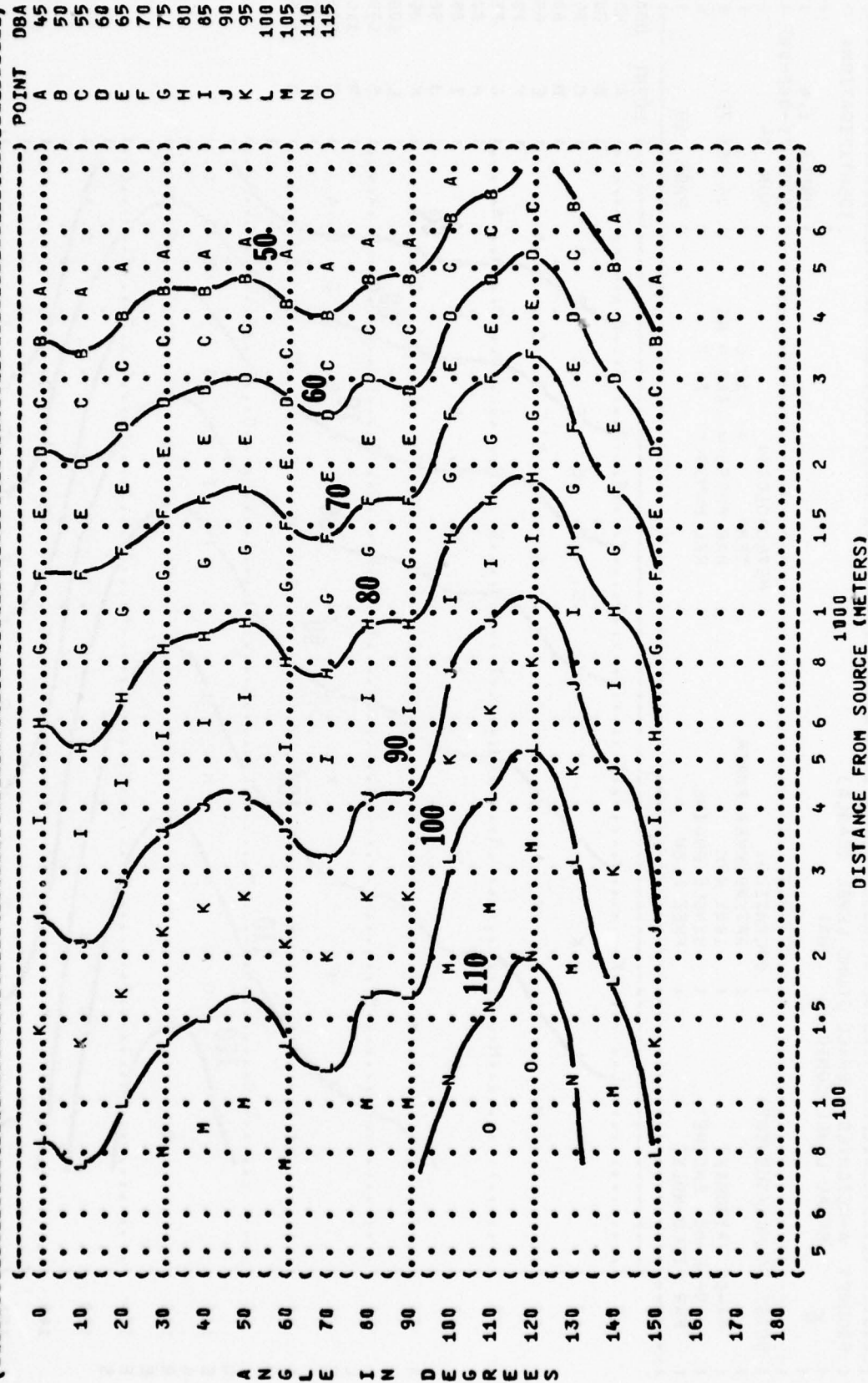


((FIGURE: A-WEIGHTED OVERALL SOUND LEVEL (OASLA)
 ((6 EQUAL LEVEL CONTOURS (DBA)
 (() IDENTIFICATION:
 (() OMEGA 1.4
 (() TEST 75-002-002
 (() RUN 02
 (()
 ((NOISE SOURCE/SUBJECT: (OPERATION:
 (() METEOROLOGY:
 (() TEMP = 15 C
 (() BAR PRESS = .760 M HG
 (() REL HUMID = 70 %
 (() 05 MAY 75
 (() PAGE 15
 (()



A N G L E I N D E G R E E S

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( { FIGURE: A-WEIGHTED OVERALL SOUND LEVEL (OASLA) }
( { EQUAL LEVEL CONTOURS (DBA) }
( { 6 }
( { NOISE SOURCE/SUBJECT: }
( { OPERATION: }
( { MILITARY POWER }
( { 100% RPM }
( { SINGLE ENGINE }
( { FREE FLOW }
( { METEOROLOGY: }
( { TEMP = 15 C }
( { BAR PRESS = .760 M HG }
( { REL HUMID = 70 % }
( { IDENTIFICATION: }
( { OMEGA 1.4 }
( { TEST 75-002-002 }
( { RUN 03 }
( { 05 MAY 75 }
( { PAGE 15 }
```



EQUAL LEVEL CONTOURS (DBA)

IDENTIFICATION:

OMEGA 1-14

TEST 75-002-002

04 RUN

9) METEOROLOGY:

TEMP = 15 C

BAR PRESS = .760 M HG

REL HUMID = 70 %

PAGE 15

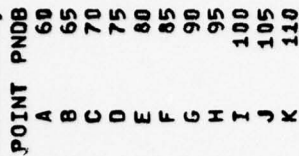
ANGLE IN DEGREES

DISTANCE FROM SOURCE (METERS)

FIGURE 7
PERCEIVED NOISE LEVEL WITH SMOOTH TONE CORRECTION (PNLT)
EQUAL LEVEL CONTOURS (PNDB)

TEST 75-002-002
RUN 01

05 MAY 75
PAGE 16



DISTANCE FROM SOURCE (METERS)

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) IDENTIFICATION:
)
) OMEGA 1.4

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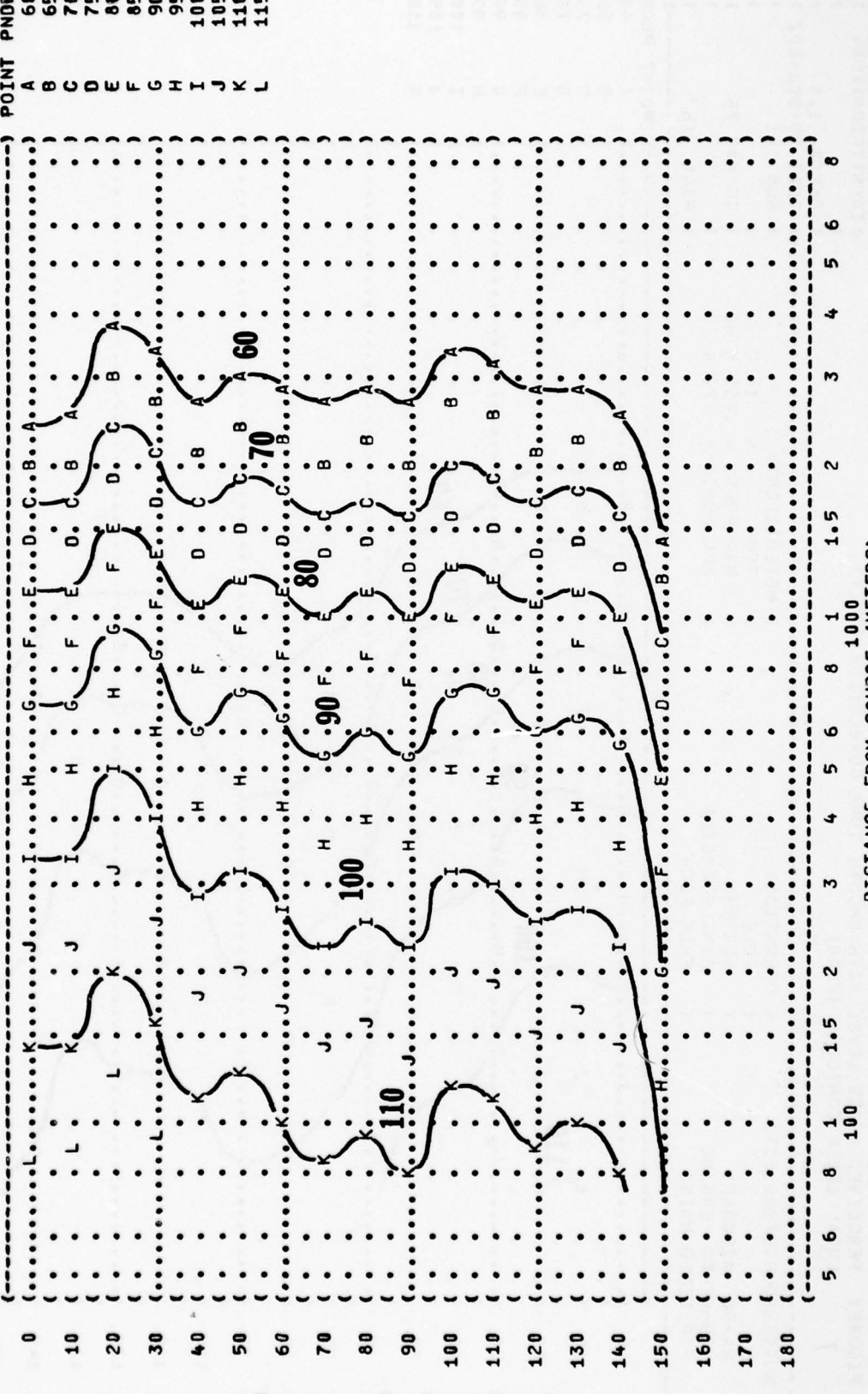
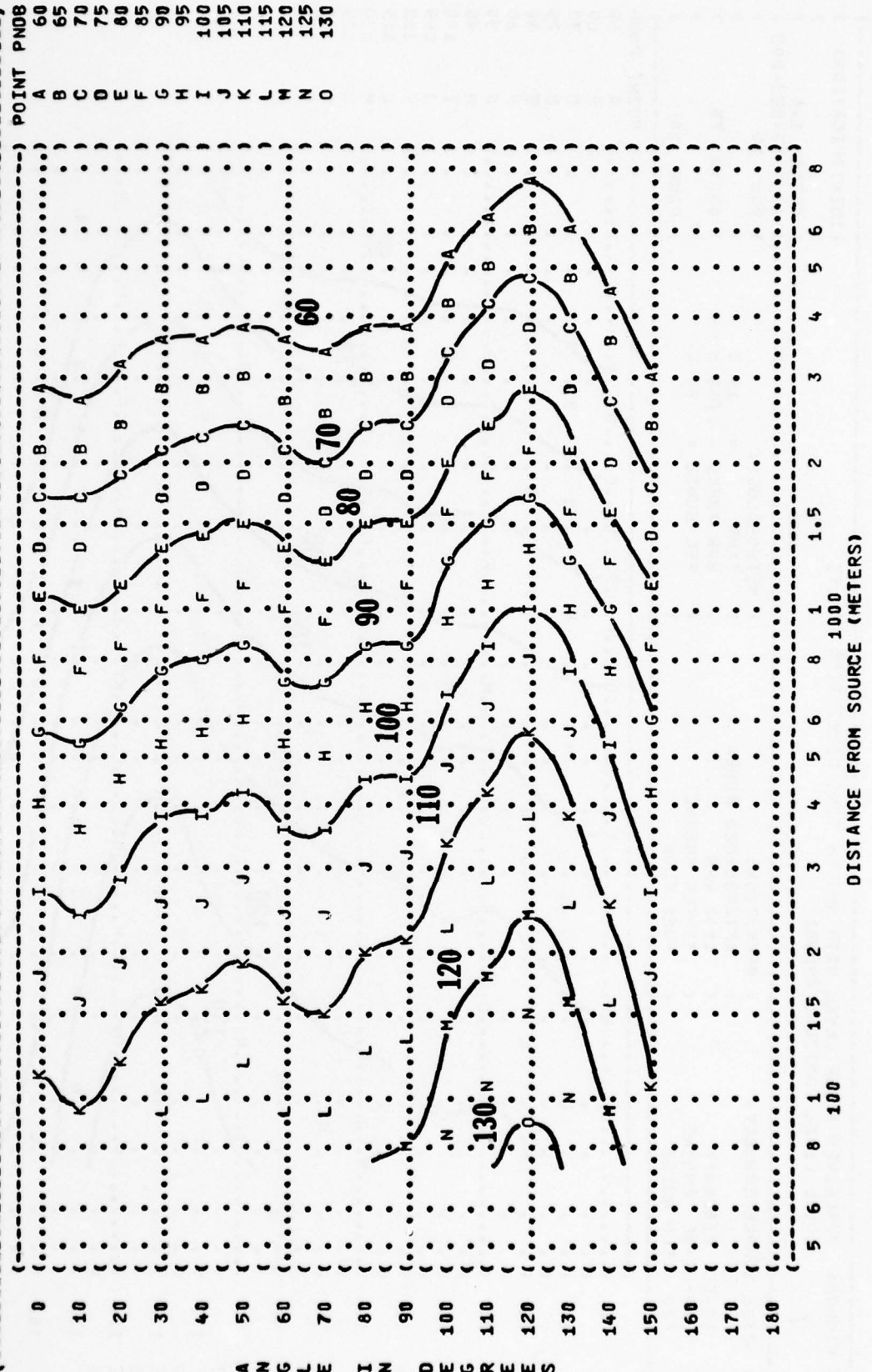


FIGURE: PERCEIVED NOISE LEVEL WITH SMOOTH TONE CORRECTION (PNLT)
 7
 IDENTIFICATION: OMEGA 1.4
 TEST 75-002-002
 RUN 03
 NOISE SOURCE/SUBJECT: OPERATION: MILITARY POWER
 RA-5C AIRCRAFT 100% RPM
 J79-GE-8C ENGINE SINGLE ENGINE
 FAR FIELD NOISE FREE FLOW
 METEOROLOGY: TEMP = 15 C
 BAR PRESS = .760 M HG
 REL HUMID = 70 %
 PAGE 16



(FIGURE: PERCEIVED NOISE LEVEL WITH SMOOTH TONE CORRECTION (PNLT)
 (7 EQUAL LEVEL CONTOURS (PNDB)
 (NOISE SOURCE/SUBJECT: (OPERATION:) METEOROLOGY:) IDENTIFICATION:)
 (RA-5C AIRCRAFT (AFTERBURNER POWER) TEMP = 15 C) OMEGA 1.4
 (J79-GE-8C ENGINE (100% RPM) BAR PRESS = .760 M HG) TEST 75-002-002
 (FAR FIELD NOISE (SINGLE ENGINE) REL HUMID = 70 %) RUN 04
 ((FREE FLOW)) PAGE 16

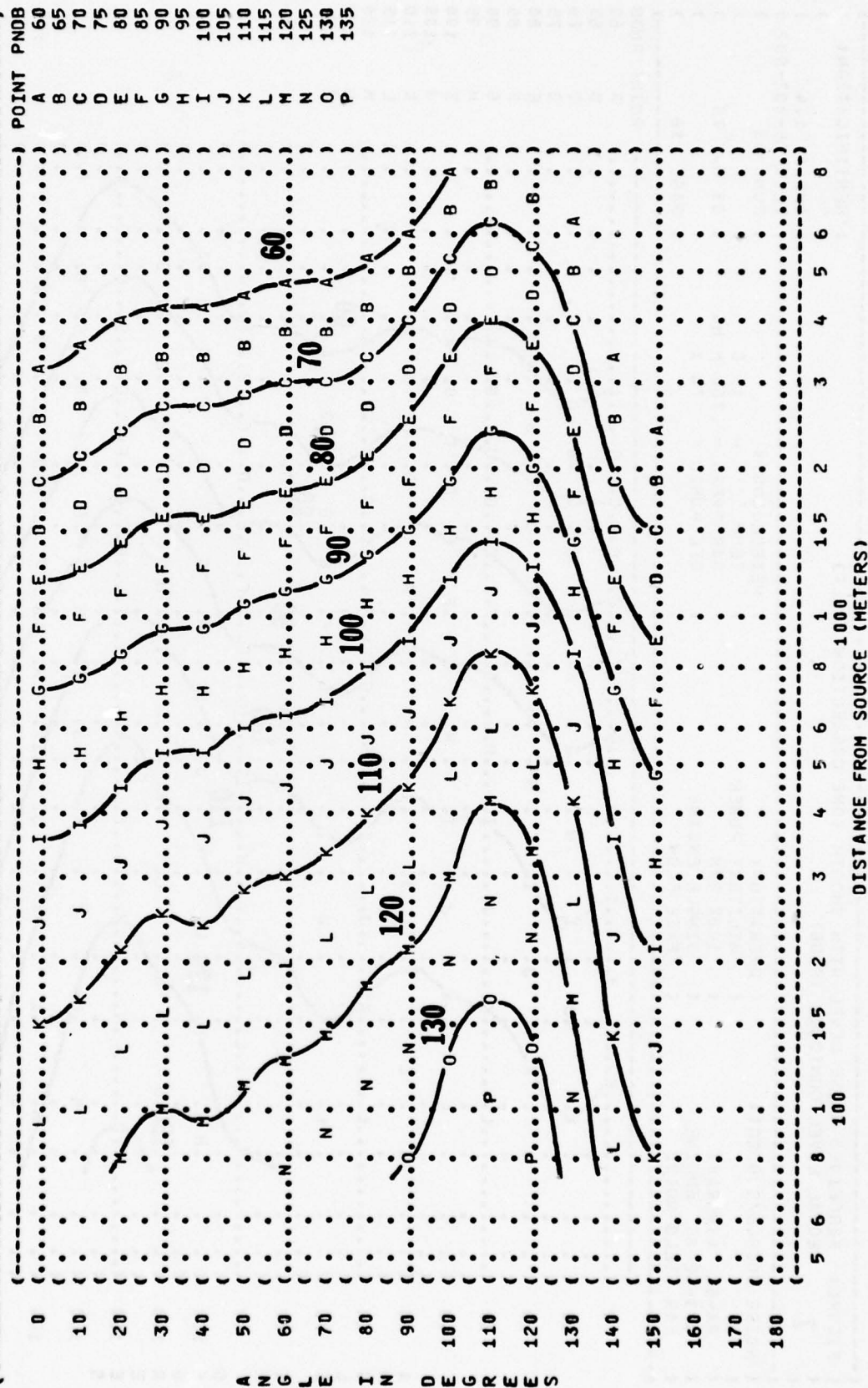


FIGURE 8: PREFERRED SPEECH INTERFERENCE LEVEL (PSIL) EQUAL LEVEL CONTOURS (DB)

IDENTIFICATION: OMEGA 1.4
TEST 75-002-002
RUN 01
05 MAY 75
PAGE 17

NOISE SOURCE/SUBJECT: OPERATION: METEOROLOGY:
RA-5C AIRCRAFT IDLE TEMP = 15 C
J79-GE-8C ENGINE 65% RPM BAR PRESS = .760 M HG
FAR FIELD NOISE SINGLE ENGINE REL HUMID = 70 %
FREE FLOW

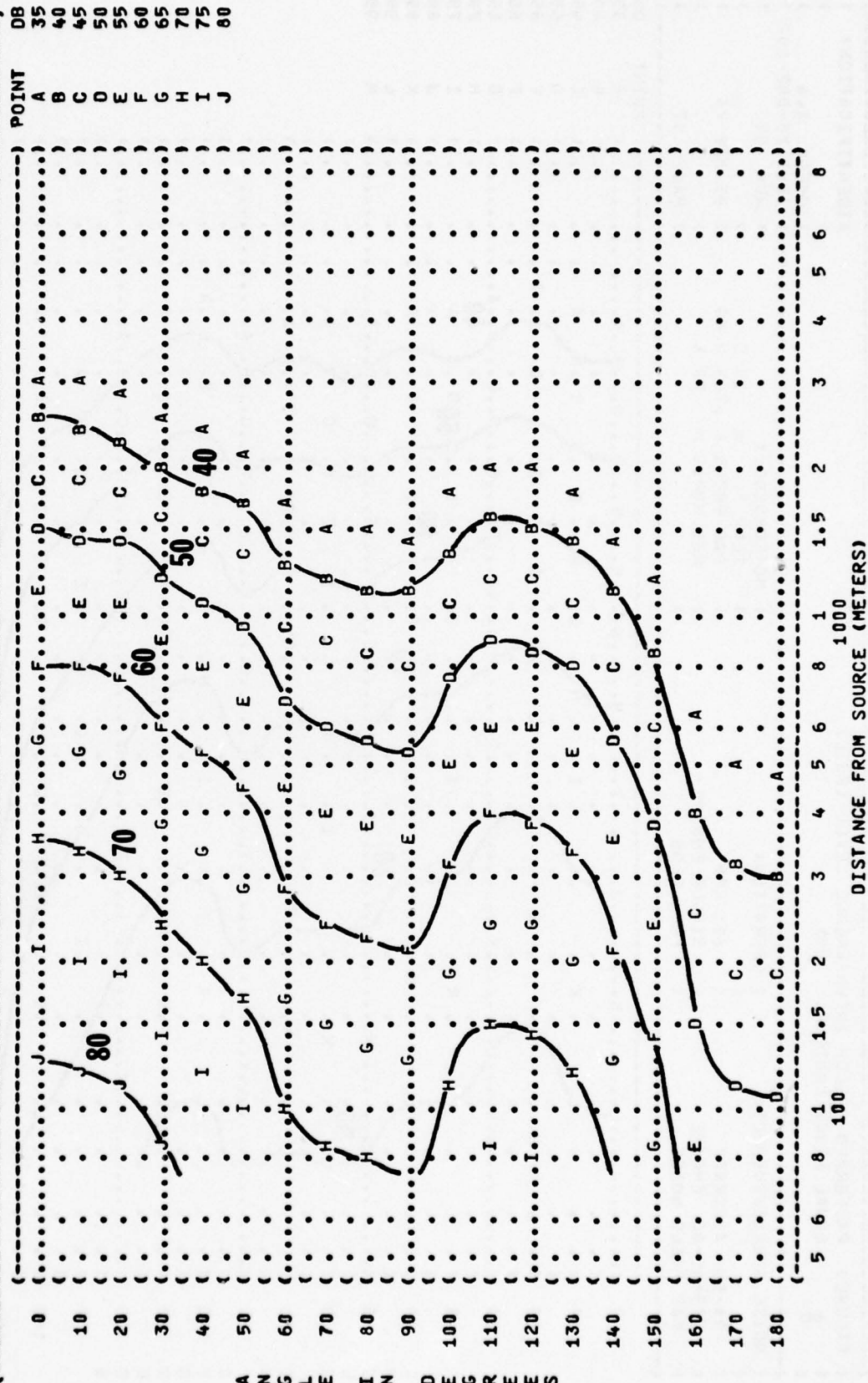
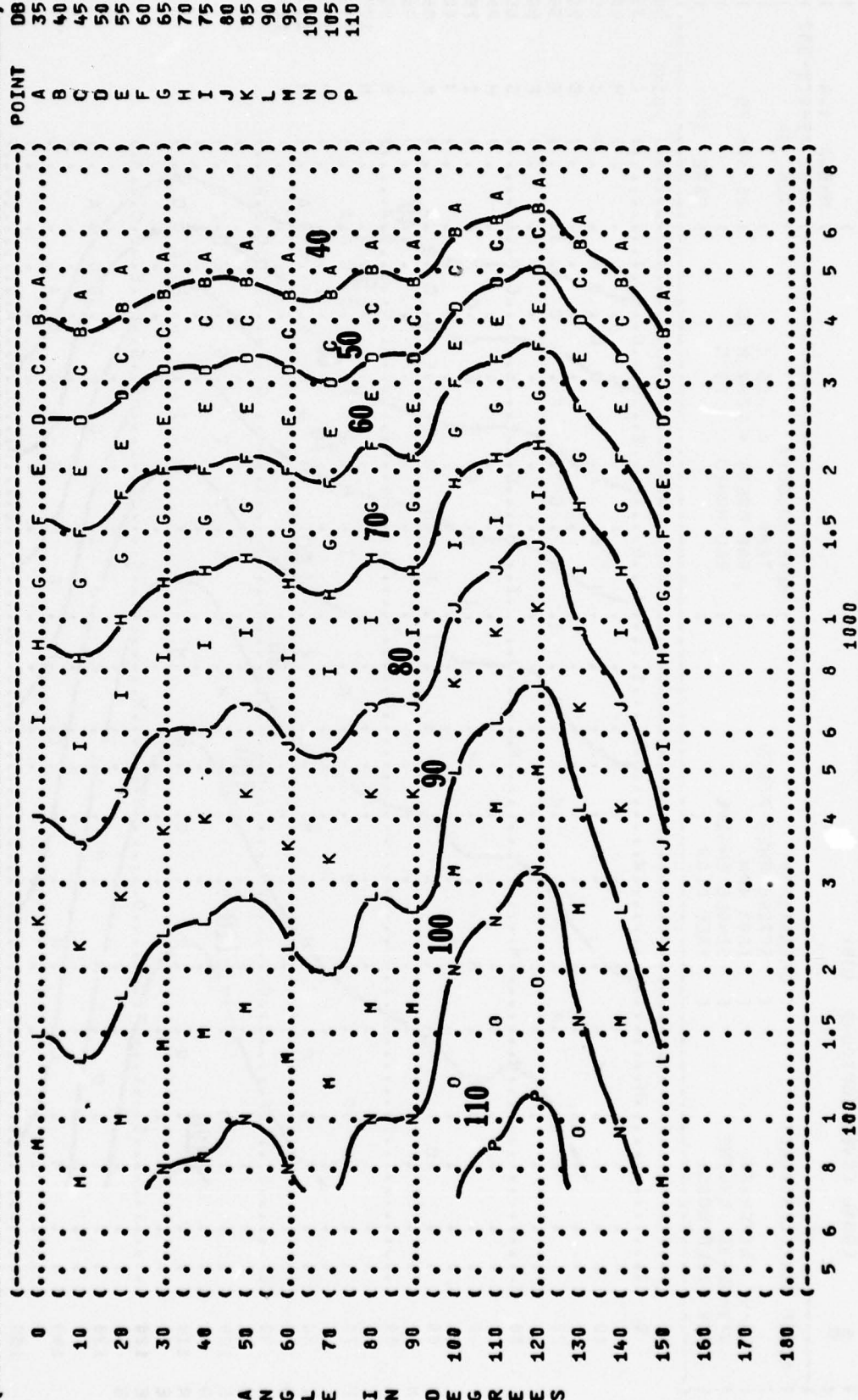


FIGURE: 8
 IDENTIFICATION: OMEGA 1.4
 TEST 75-002-002
 RUN 03
 NOISE SOURCE/SUBJECT: RA-5C AIRCRAFT
 J79-GE-8C ENGINE
 FAR FIELD NOISE
 OPERATION: MILITARY POWER
 100% RPM
 SINGLE ENGINE
 FREE FLOW
 METEOROLOGY: TEMP = 15 C
 BAR PRESS = .760 M HG
 REL HUMID = 70 %
 05 MAY 75
 PAGE 17



ANGLES

IDENTIFICATION:)
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9) METEOROLOGY:

(OPERATION:

TEMP = 15 C

BAR PRESS = .760 M HG

REL HUMID = 70 %

PAGE 17

[illegible]

DISTANCE FROM SOURCE (METERS)


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(-----)
( FIGURE: MAXIMUM PERMISSIBLE TIME {T} FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73) ) IDENTIFICATION: )
(      9    EQUAL TIME CONTOURS (MINUTES) ) )
( ) ) OMEGA 1.4 )
( ) ) TEST 75-002-002 )
( NOISE SOURCE/SUBJECT: ) METEOROLOGY: ) RUN 01 )
( ) ) TEMP = 15 C ) )
( RA-5C AIRCRAFT ) ) BAR PRESS = .760 M HG ) )
( J79-GE-8C ENGINE ) SINGLE ENGINE ) ) 05 MAY 75 )
( FAR FIELD NOISE ) FREE FLOW ) ) PAGE 8 )
(-----)
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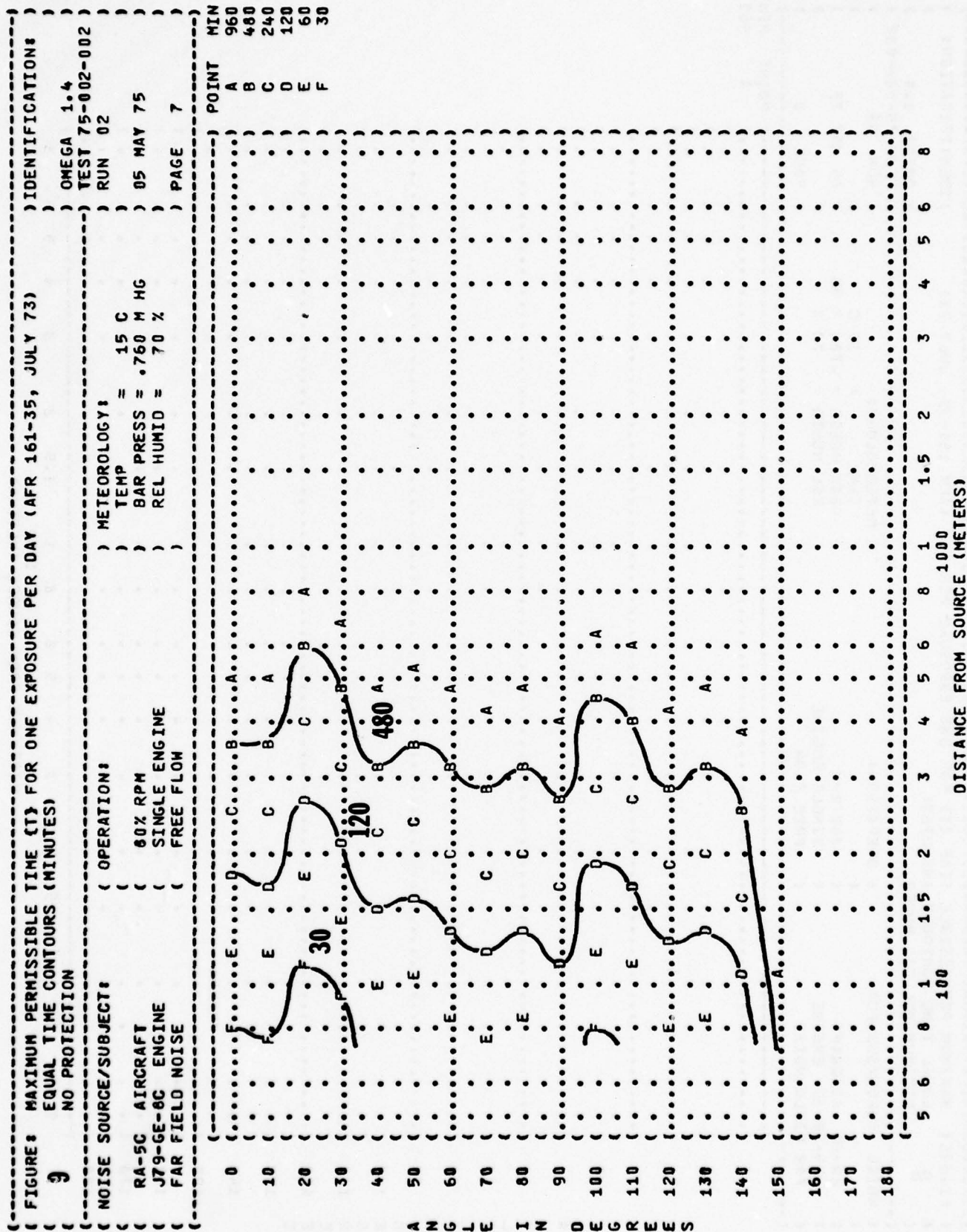
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PERSONNEL MAY BE EXPOSED UP TO 960 MINUTES PER DAY
AT ALL DISTANCES FROM SOURCE EQUAL TO OR GREATER THAN 75 METERS
FOR ALL ANGLES EVALUATED (INDICATED BY \angle AT LEFT)

UNDER THE FOLLOWING EAR PROTECTION CONDITIONS:

MINIMUM QPL EAR MUFFS
AMERICAN OPTICAL 1700 EAR MUFFS
V-51R EAR PLUGS
COMFIT TRIPLE FLANGE EAR PLUGS
H-133 GROUND COMMUNICATION UNIT

5 6 8 1 1.5 2 3 4 5 6 8
100 1000
DISTANCE FROM SOURCE (METERS)



POINT A	MIN 960
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DISTANCE FROM SOURCE (METERS)

POINT A	MIN 960
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(-----)
( FIGURE: MAXIMUM PERMISSIBLE TIME {T} FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73) ) IDENTIFICATION:
( 9 EQUAL TIME CONTOURS (MINUTES) ) )
( ) OMEGA 1.4 )
(-----)
( NOISE SOURCE/SUBJECT: ) OPERATION: ) METEOROLOGY: ) RUN 02 ) TEST 75-002-002
( RA-5C AIRCRAFT ) ( TEMP = 15 C ) )
( J79-GE-8C ENGINE ) ( 80% RPM ) BAR PRESS = .760 M HG )
( FAR FIELD NOISE ) ( SINGLE ENGINE ) REL HUMID = 70 % )
( FREE FLOW ) ) PAGE 11 )
(-----)
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[illegible]

PERSONNEL MAY BE EXPOSED UP TO 960 MINUTES PER DAY
AT ALL DISTANCES FROM SOURCE EQUAL TO OR GREATER THAN 75 METERS
FOR ALL ANGLES EVALUATED (INDICATED BY < AT LEFT)
UNDER THE FOLLOWING EAR PROTECTION CONDITIONS:
AMERICAN OPTICAL 1700 EAR MUFFS
H-133 GROUND COMMUNICATION UNIT

DISTANCE FROM SOURCE (METERS)	
100	1000
5 6 8 1 1.5 2 3 4 5 6 8	5 6 8 1 1.5 2 3 4 5 6 8

ANGLE IN DEGREES

FIGURE: MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)

IDENTIFICATION: 9

NO PROTECTION

NOISE SOURCE/SUBJECT: (OPERATION:) METEOROLOGY:)

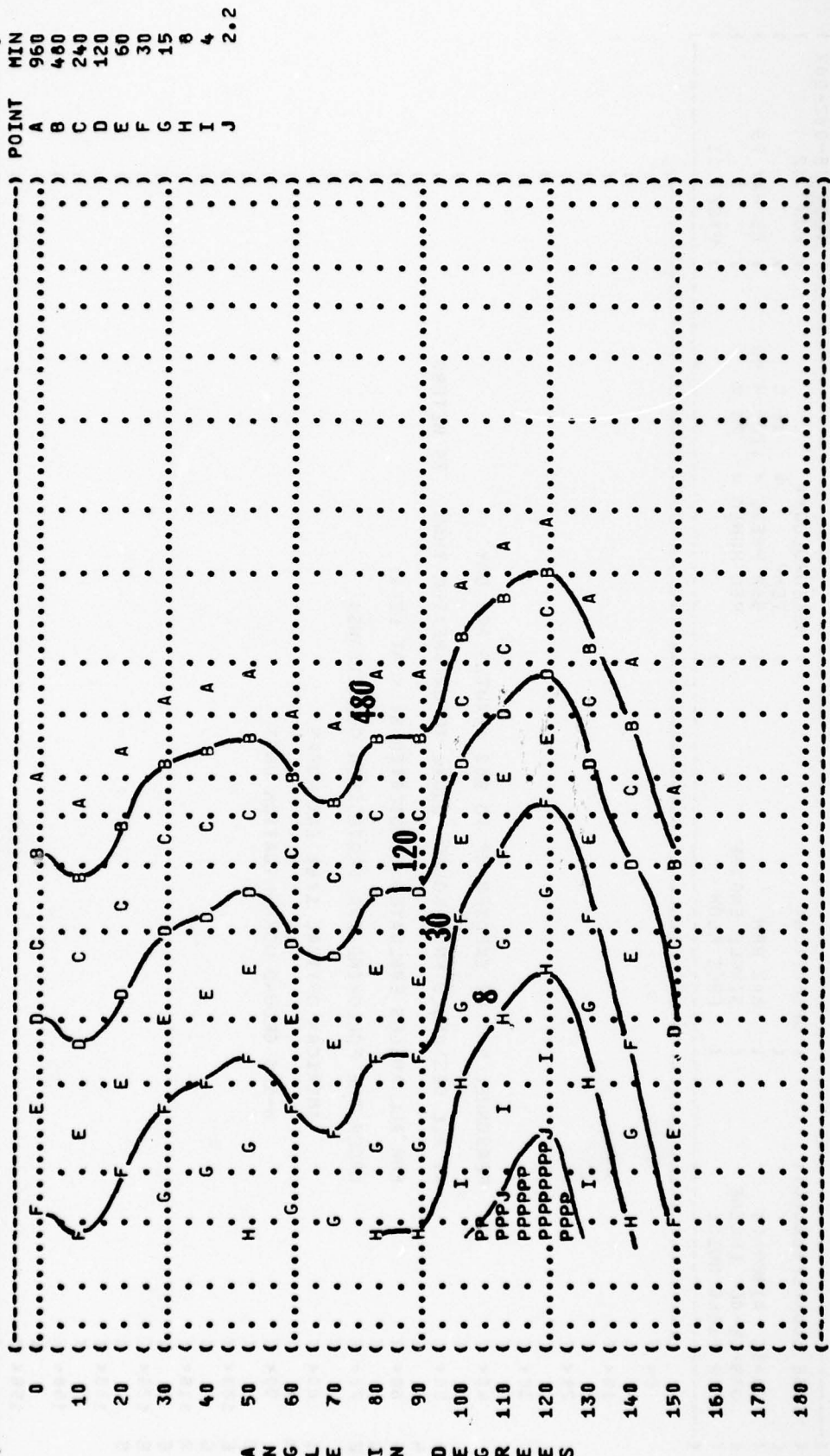
RA-5C AIRCRAFT (MILITARY POWER) TEMP = 15 C

J79-GE-8C ENGINE (100% RPM) BAR PRESS = .760 M HG

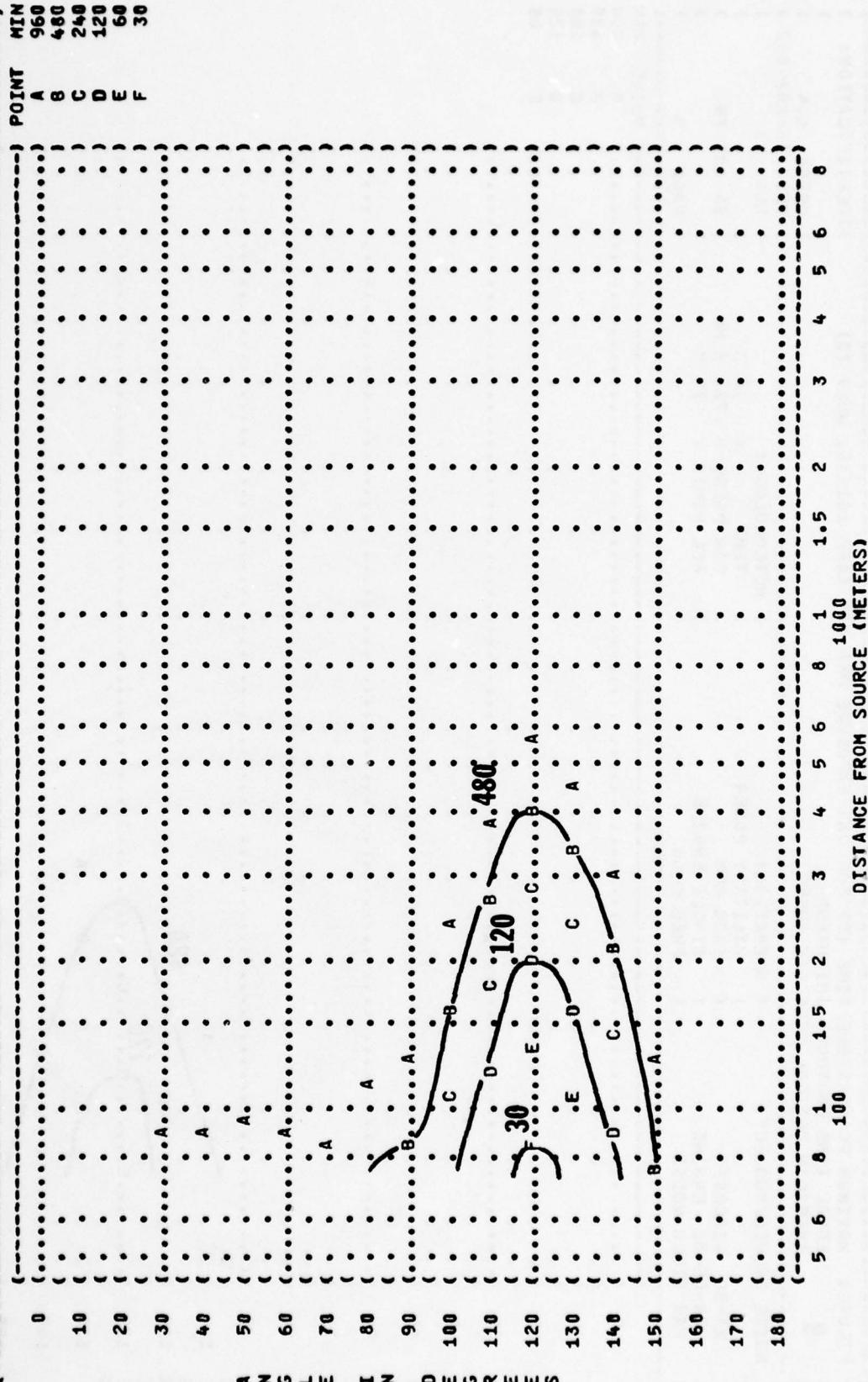
FAR FIELD NOISE (SINGLE ENGINE) REL HUMID = 70 %

(FREE FLOW)

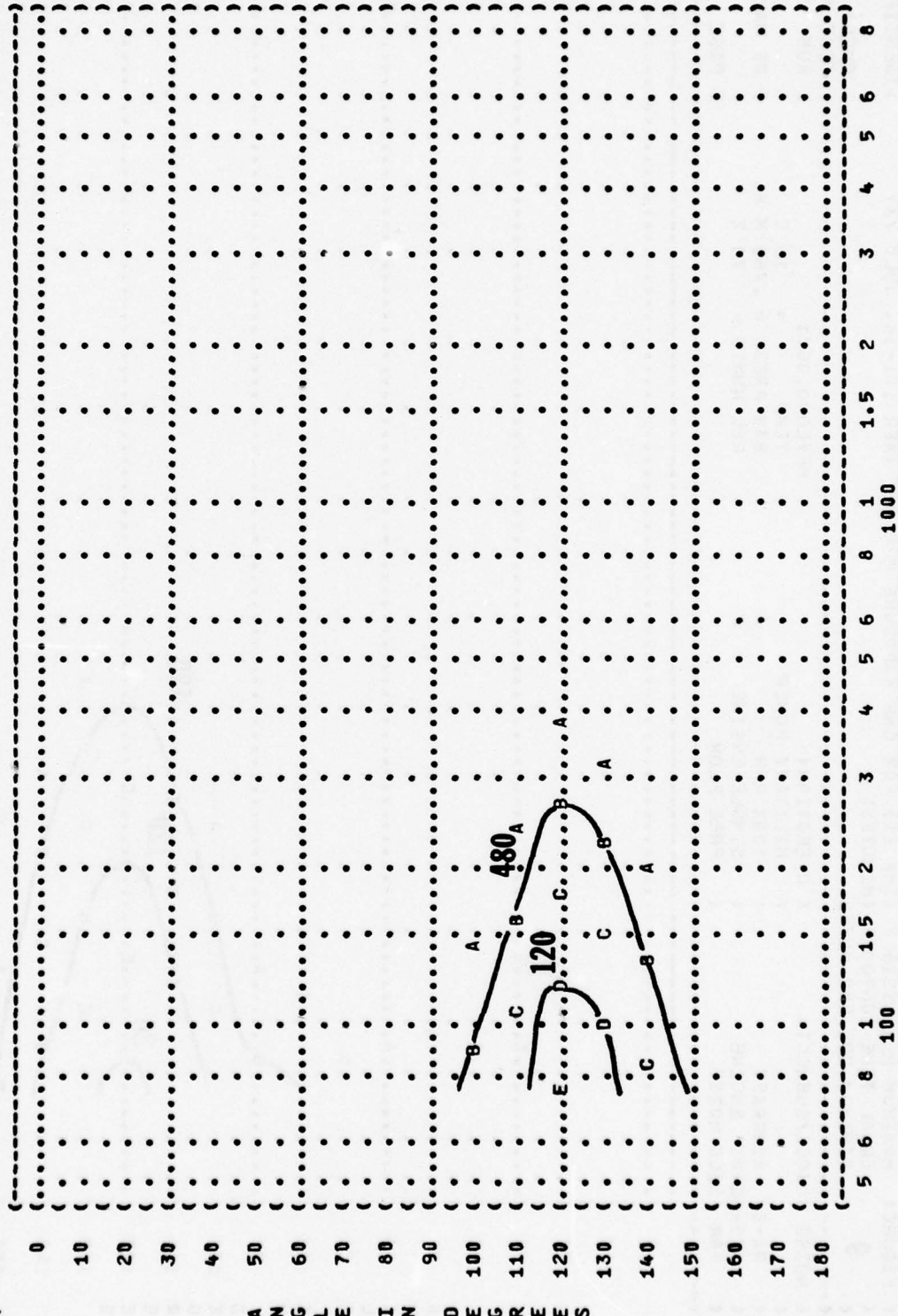
PAGE 7

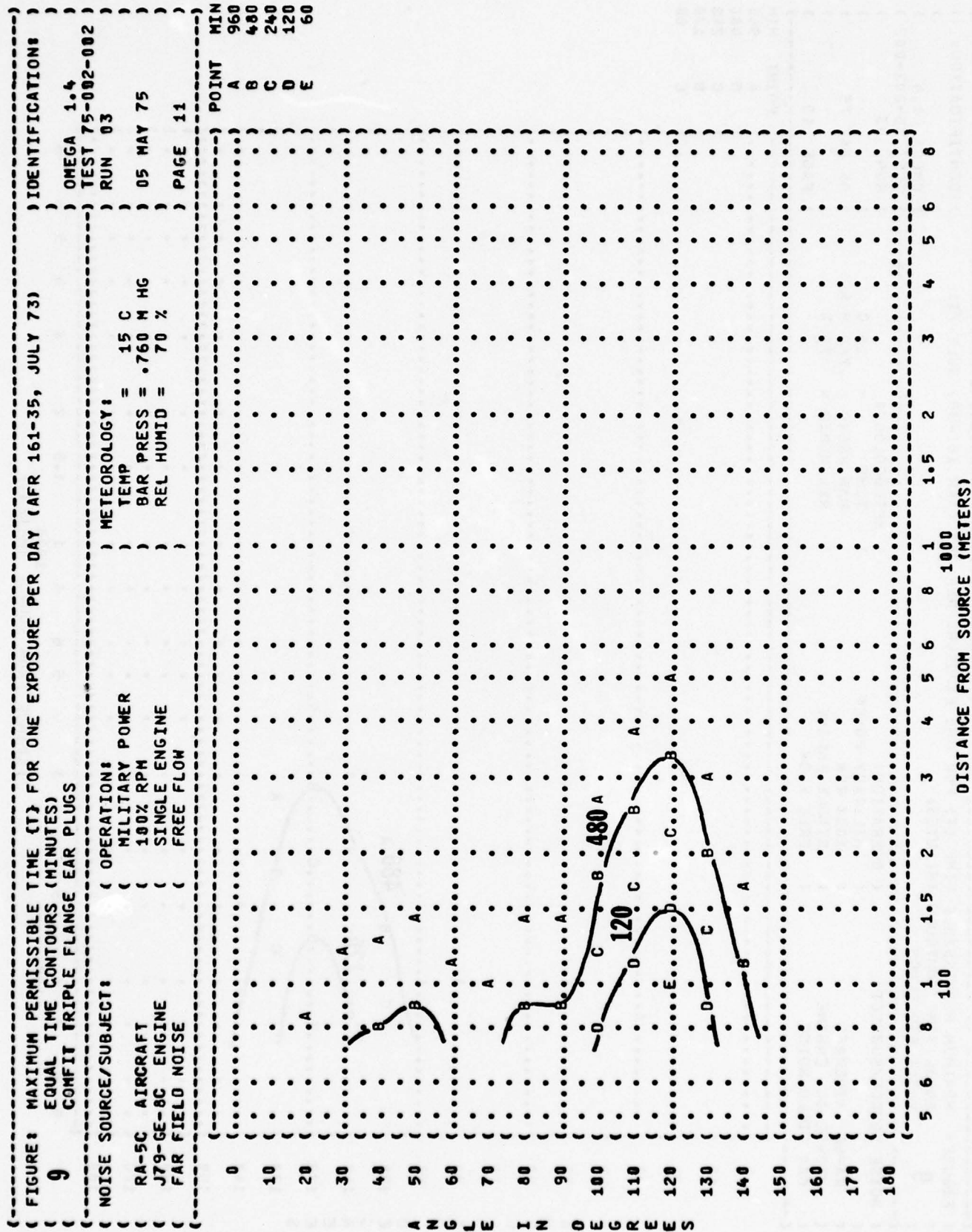


P ADDITIONAL EAR PROTECTION REQUIRED.

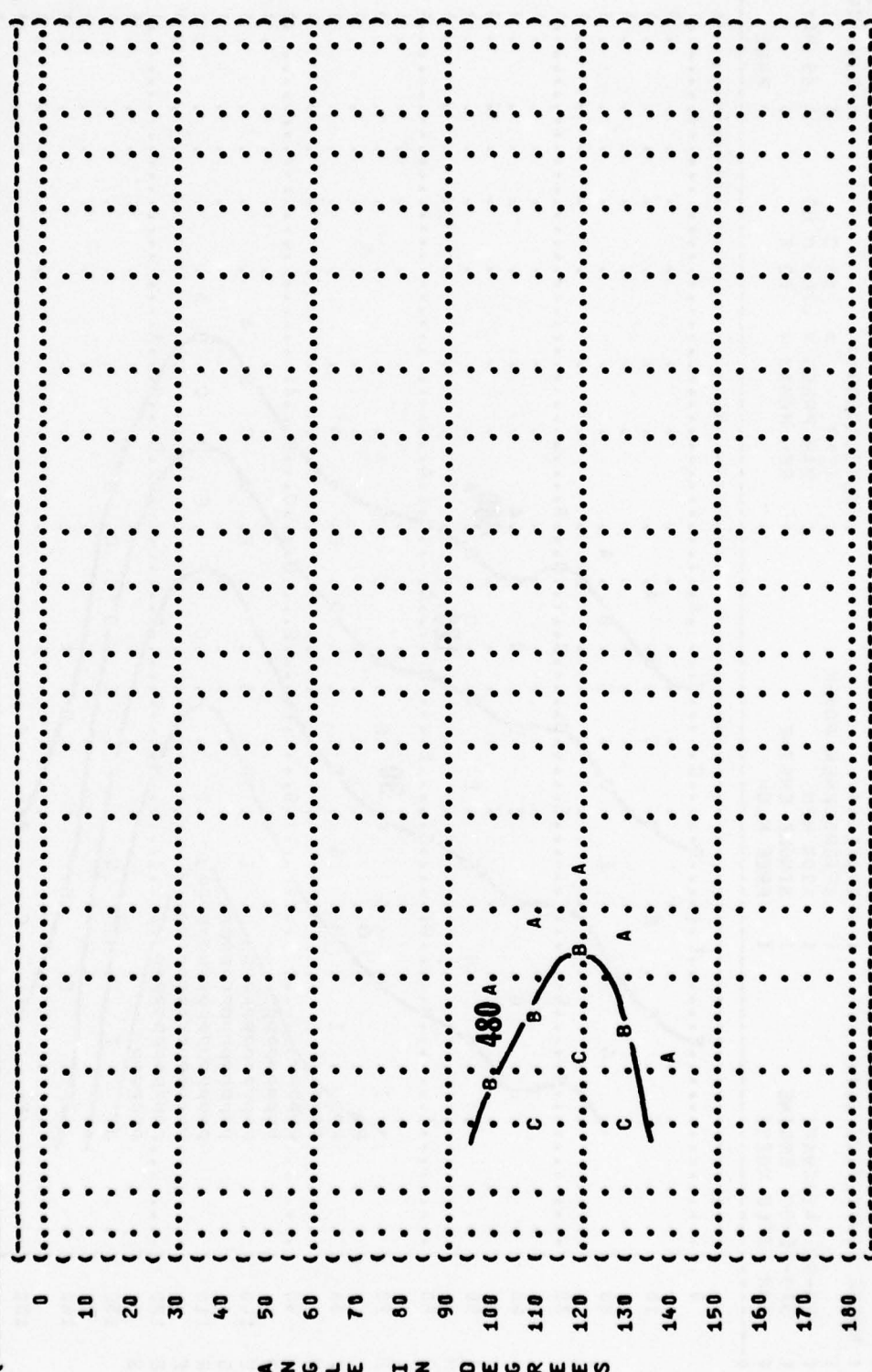
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POINT	MIN
A	960
B	480
C	240
D	120
E	60



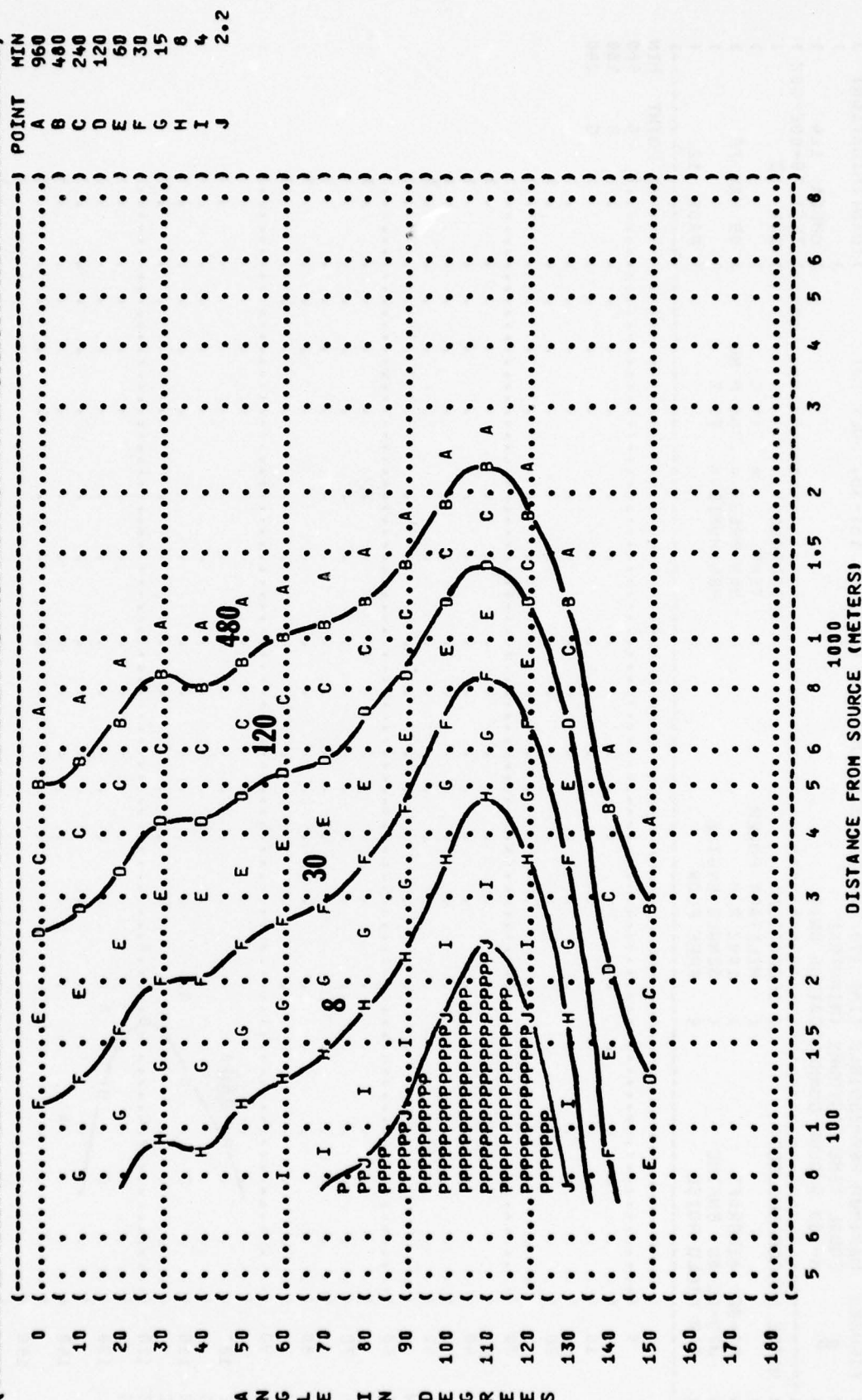


POINT	MIN
A	960
B	480
C	240



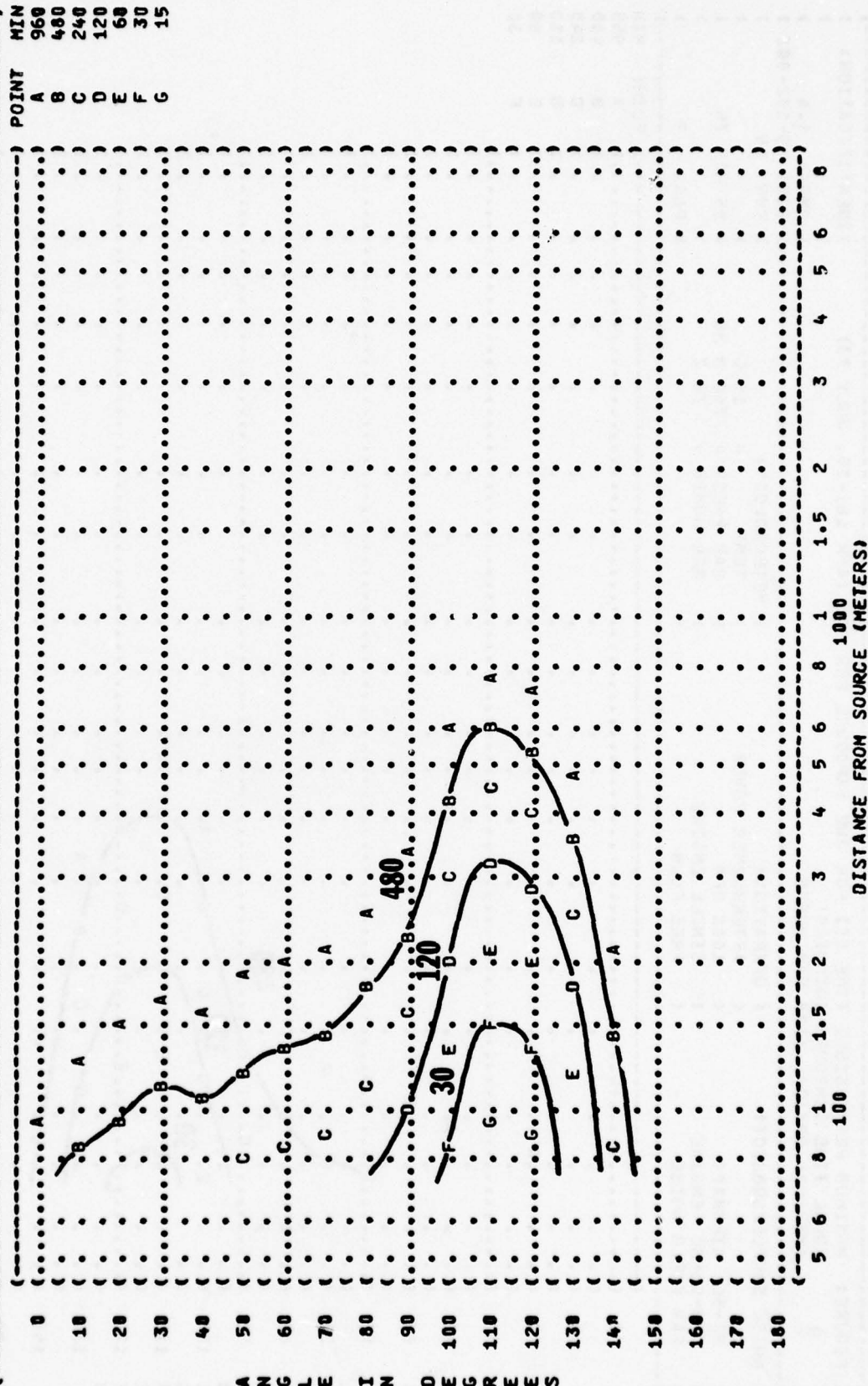
DISTANCE FROM SOURCE (METERS)

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(-----)
( FIGURE: MAXIMUM PERMISSIBLE TIME (T) FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73) ) IDENTIFICATION: )
(      9    EQUAL TIME CONTOURS (MINUTES) ) )
(      NO PROTECTION ) OMEGA 1.4 )
(-----)
( NOISE SOURCE/SUBJECT: ) METEOROLOGY: ) TEST 75-002-002 )
( ( OPERATION: ) ) RUN 04 )
( ( AFTERBURNER POWER ) TEMP = 15 C ) )
( ( 100% RPM ) BAR PRESS = .760 M HG ) )
( ( SINGLE ENGINE ) REL HUMID = 70 % ) )
( ( FREE FLOW ) ) PAGE 7 )
( RA-5C AIRCRAFT )
( J79-GE-8C ENGINE )
( FAR FIELD NOISE )
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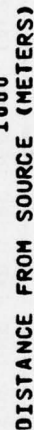


ADDITIONAL EAR PROTECTION REQUIRED.

FIGURE:	MAXIMUM PERMISSIBLE TIME {T} FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73)	IDENTIFICATION:
9	EQUAL TIME CONTOURS (MINUTES)	
	MINIMUM QPL EAR MUFFS	OMEGA 1.4
		TEST 75-002-002
		RUN 04
NOISE SOURCE/SUBJECT:	OPERATION:	METEOROLOGY:
RA-5C AIRCRAFT	AFTERBURNER POWER	TEMP = 15 C
J79-GE-0C ENGINE	100% RPM	BAR PRESS = .760 M HG
FAR FIELD NOISE	SINGLE ENGINE	REL HUMID = 70 %
	FREE FLOW	PAGE 8

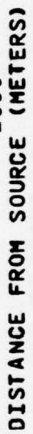


POINT	MIN
A	960
B	480
C	240
D	120
E	60
F	30



FAR FIELD NOISE (FREE FLOW) PAGE 10

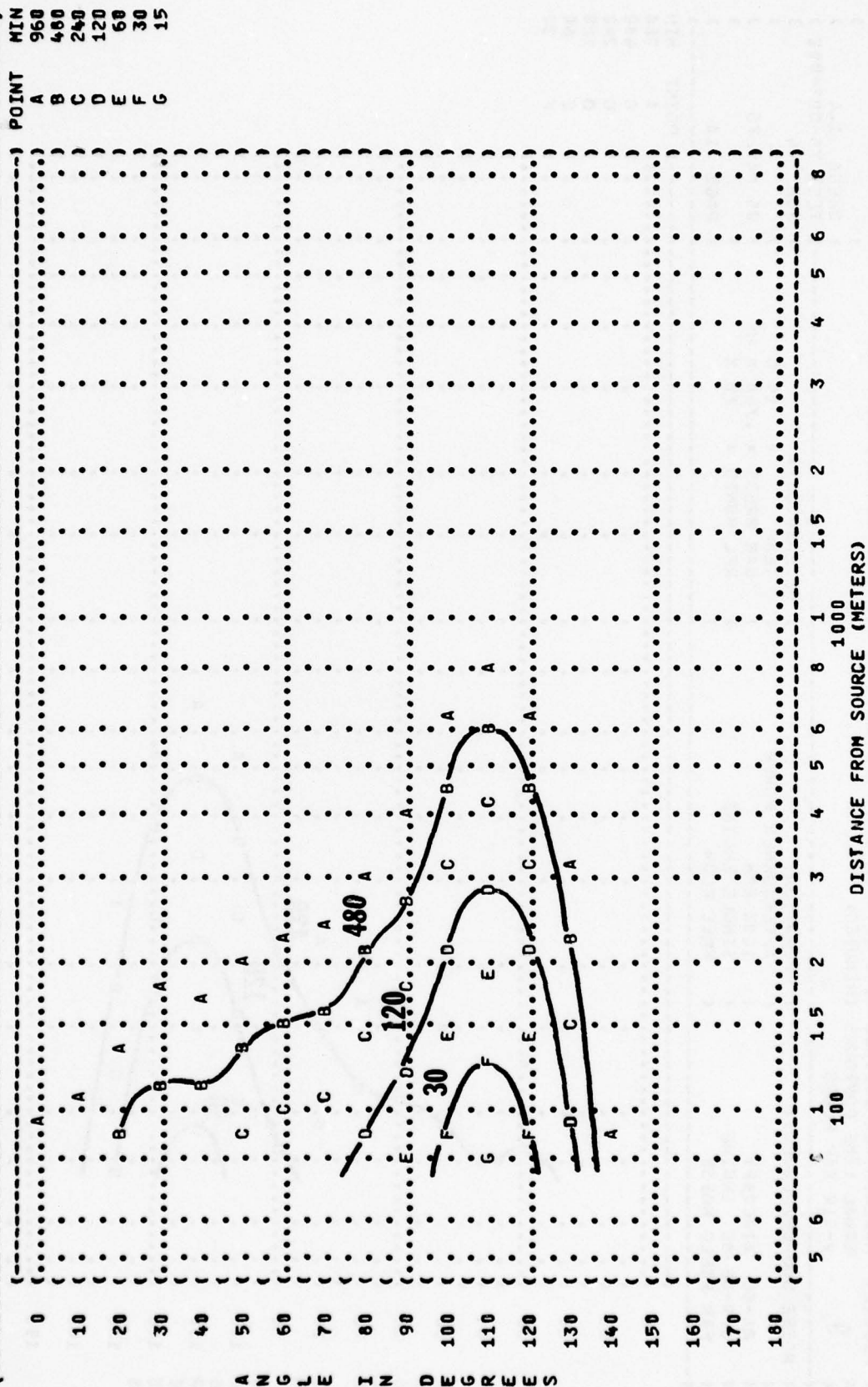
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(( FIGURE: MAXIMUM PERMISSIBLE TIME {T} FOR ONE EXPOSURE PER DAY (AFR 161-35, JULY 73) ) IDENTIFICATION: )
(( 9 EQUAL TIME CONTOURS (MINUTES) ) )
(( COMFIT TRIPLE FLANGE EAR PLUGS ) )
(( ) OMEGA 1.4 )
(( ) TEST 75-002-002 )
(( NOISE SOURCE/SUBJECT: ) )
(( ) OPERATION: ) METEOROLOGY: )
(( ) AFTERBURNER POWER ) TEMP = 15 C )
(( ) 100% RPM ) BAR PRESS = .760 M HG )
(( ) SINGLE ENGINE ) REL HUMID = 70 % )
(( ) FREE FLOW ) )
(( RA-5C AIRCRAFT ) )
(( J79-GE-8C ENGINE ) )
(( FAR FIELD NOISE ) )
(( ) PAGE 11 )

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((FIGURE: SOUND PRESSURE LEVEL (SPL)
 ((10 EQUAL LEVEL CONTOURS (DB)
 ((31.5 HZ OCTAVE BAND
 ((NOISE SOURCE/SUBJECT: (OPERATION:
 (((IDLE
 (((65% RPM
 (((SINGLE ENGINE
 (((FREE FLOW
 ((RA-5C AIRCRAFT
 ((J79-GE-8C ENGINE
 ((FAR FIELD NOISE
 ((METEOROLOGY:
 ((TEMP = 15 C
 ((BAR PRESS = .760 M HG
 ((REL HUMID = 70 %
 ((IDENTIFICATION:
 ((OMEGA 1.4
 ((TEST 75-002-002
 ((RUN 01
 ((05 MAY 75
 ((PAGE 18

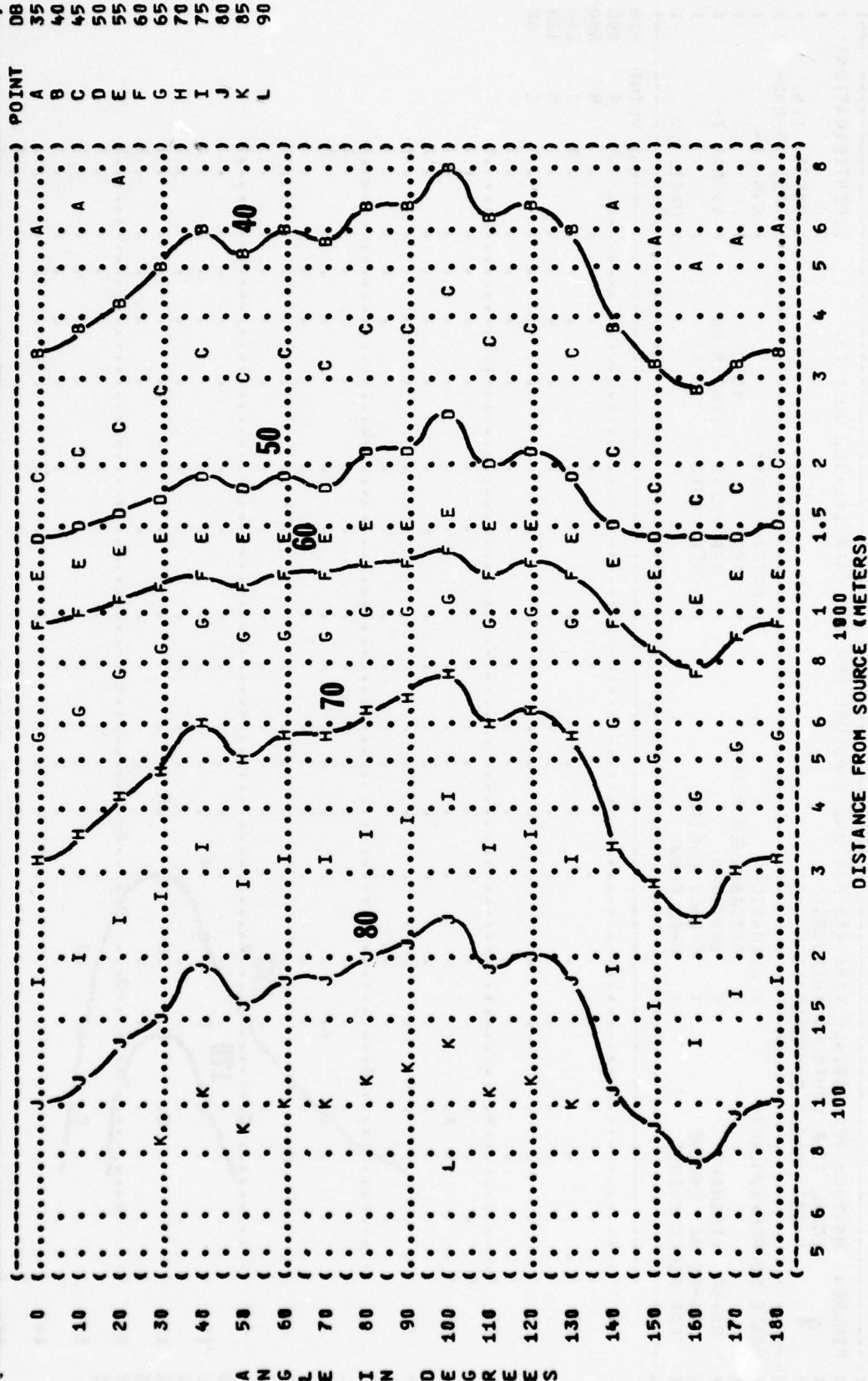
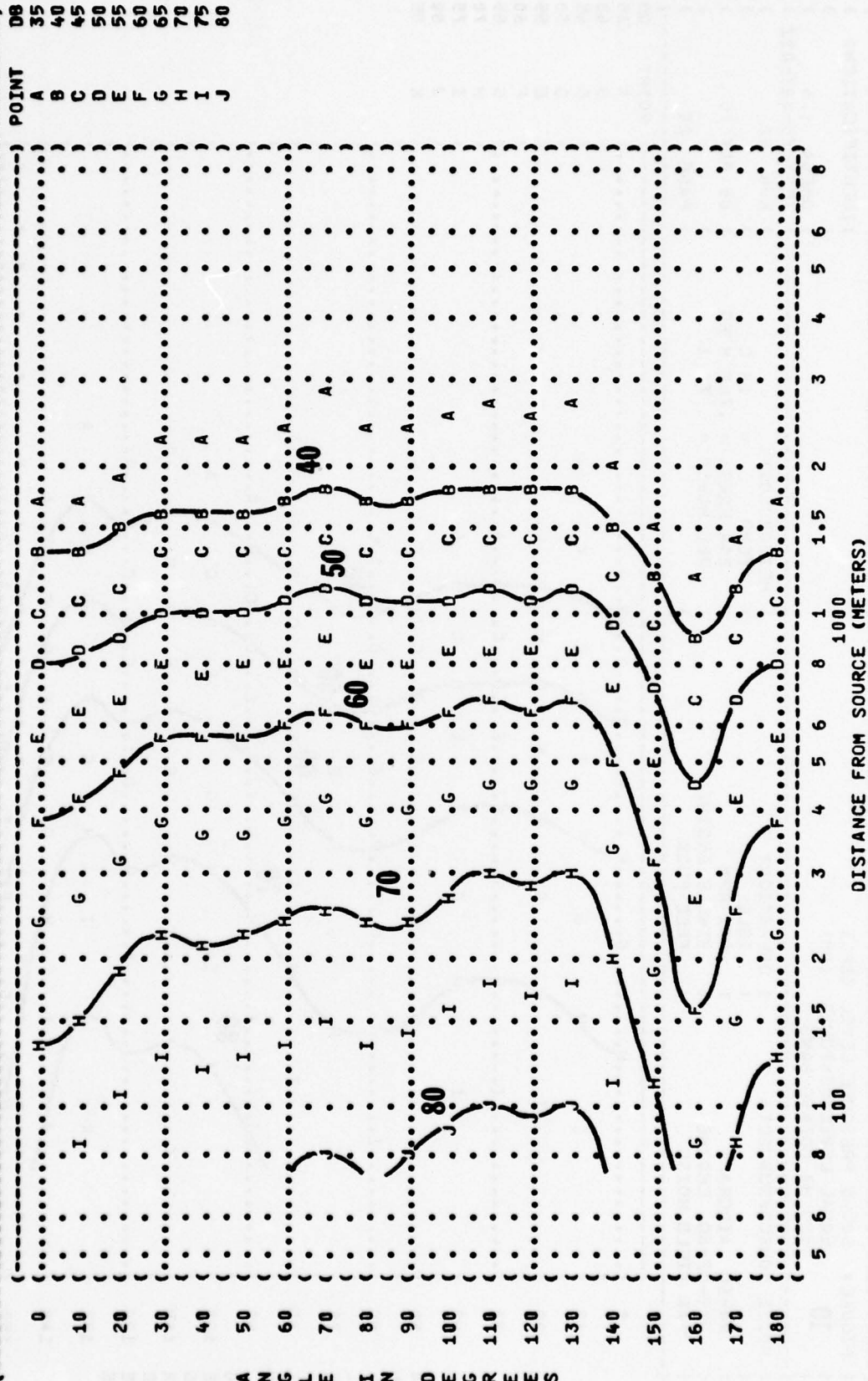


FIGURE: SOUND PRESSURE LEVEL {SPL}	IDENTIFICATION:
EQUAL LEVEL CONTOURS (DB)	
10	
63 HZ OCTAVE BAND	OMEGA 1.4
	TEST 75-002-002
NOISE SOURCE/SUBJECT:	RUN 01
	METEOROLOGY:
	TEMP = 15 C
RA-5C AIRCRAFT	BAR PRESS = .760 M HG
J79-GE-8C ENGINE	REL HUMID = 70 %
FAR FIELD NOISE	PAGE 19



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FIGURE 10 SOUND PRESSURE LEVEL {SPL}
EQUAL LEVEL CONTOURS (DB)
125 HZ OCTAVE BAND

IDENTIFICATION:

OMEGA 1.4

TEST 75-002-002

RUN 01

1) METEOROLOGY:

TEMP = 15 C

BAR PRESS = .760 M HG

REL HUMID = 70 %

OPERATIONS:

3701)

(65% RPM

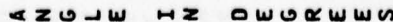
() SINGLE ENGINE

(FREE FLOW

NOISE SOURCE/SUBJECT:

RA-5C AIRCRAFT

J79-GE-8C ENGINE

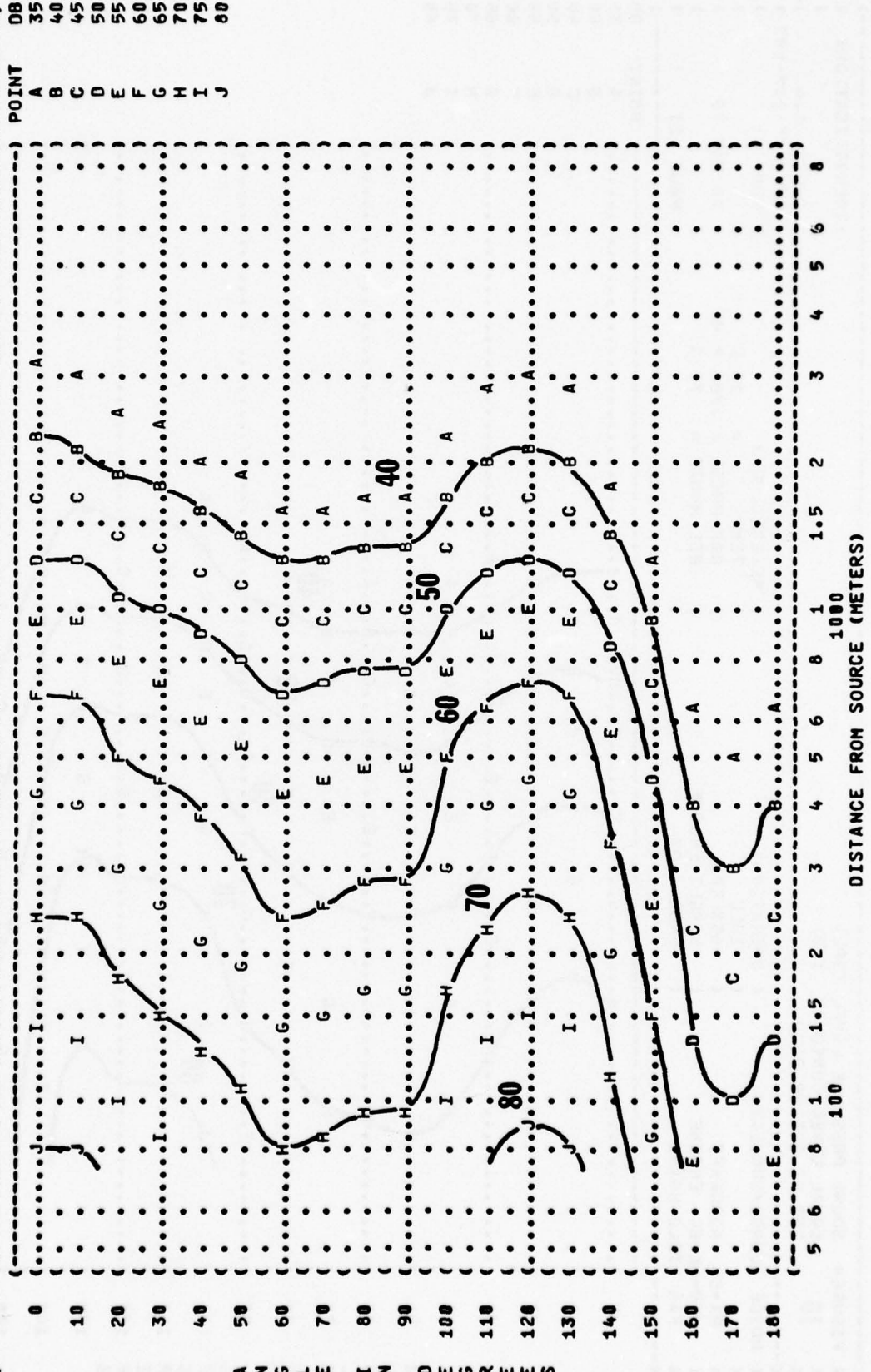


DISTANCE FROM SOURCE (METERS)

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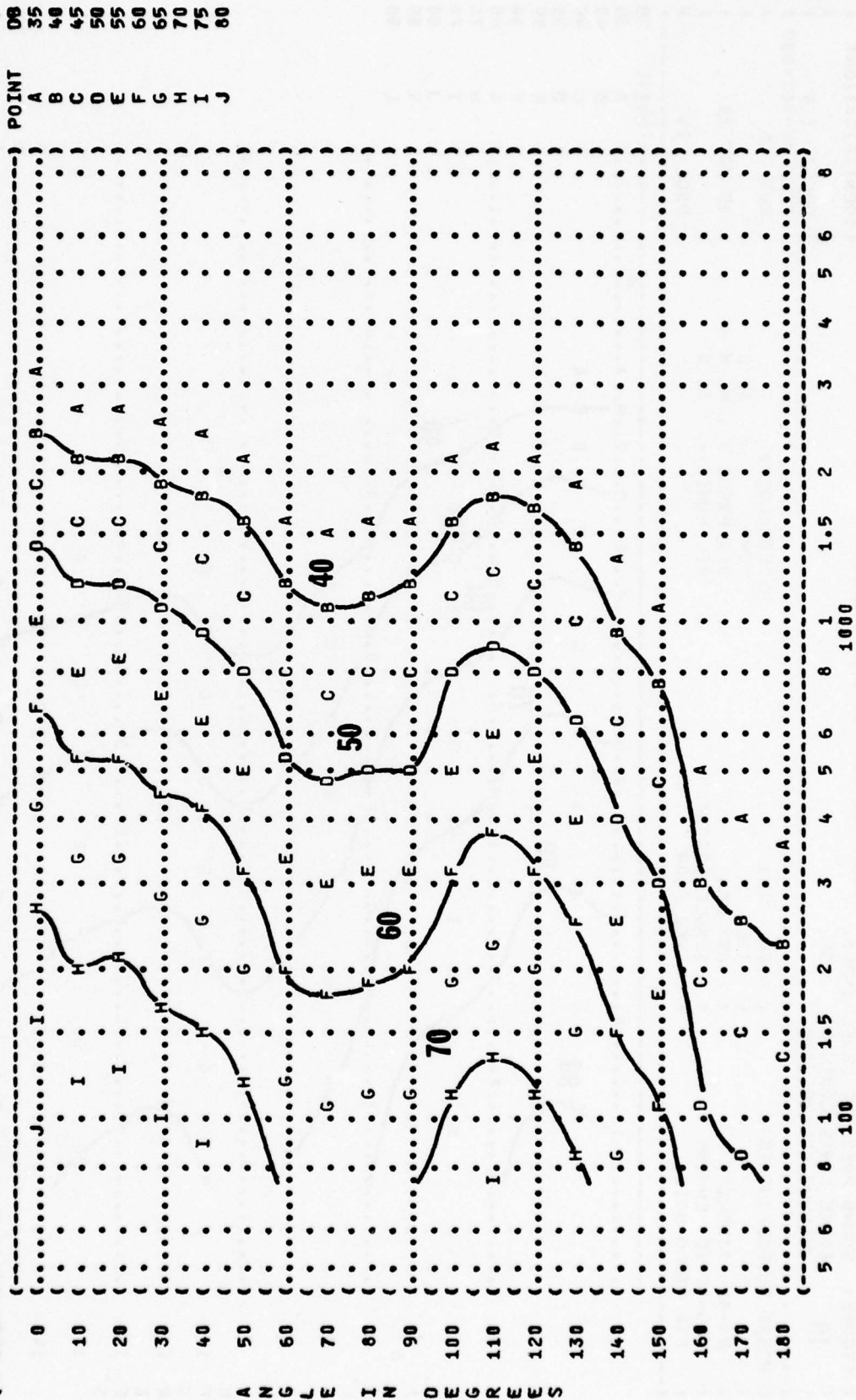


(FIGURE: SOUND PRESSURE LEVEL (SPL)
 (10 EQUAL LEVEL CONTOURS (DB)
 (500 HZ OCTAVE BAND
 (NOISE SOURCE/SUBJECT:
 ((OPERATION:
 ((IDLE
 ((65% RPM
 ((SINGLE ENGINE
 ((FREE FLOW
 (RA-5C AIRCRAFT
 (J79-GE-8C ENGINE
 (FAR FIELD NOISE
 (METEOROLOGY:
 (TEMP = 15 C
 (BAR PRESS = .760 M HG
 (REL HUMID = 70 %
 (IDENTIFICATION:
 (OMEGA 1.4
 (TEST 75-002-002
 (RUN 01
 (05 MAY 75
 (PAGE 22
 (POINT DB
 (A 35
 (B 40
 (C 45
 (D 50
 (E 55
 (F 60
 (G 65
 (H 70
 (I 75
 (J 80



A N G L E I N D E G R E E S

) IDENTIFICATION:)
) OMEGA 1.4
) TEST 75-002-002)
) RUN 01)
) 05 MAY 75)
) PAGE 23)
)
) METEOROLOGY:)
) TEMP = 15 C)
) BAR PRESS = .760 M HG)
) REL HUMID = 70 %)
)
) OPERATION:)
) IDLE)
) 65% RPM)
) SINGLE ENGINE)
) FREE FLOW)
)
) NOISE SOURCE/SUBJECT:)
) RA-5C AIRCRAFT)
) JF9-GE-8C ENGINE)
) FAR FIELD NOISE)



IDENTIFICATIONS
OMEGA 1.4

OMEGA 1.4

METEOROLOGY:

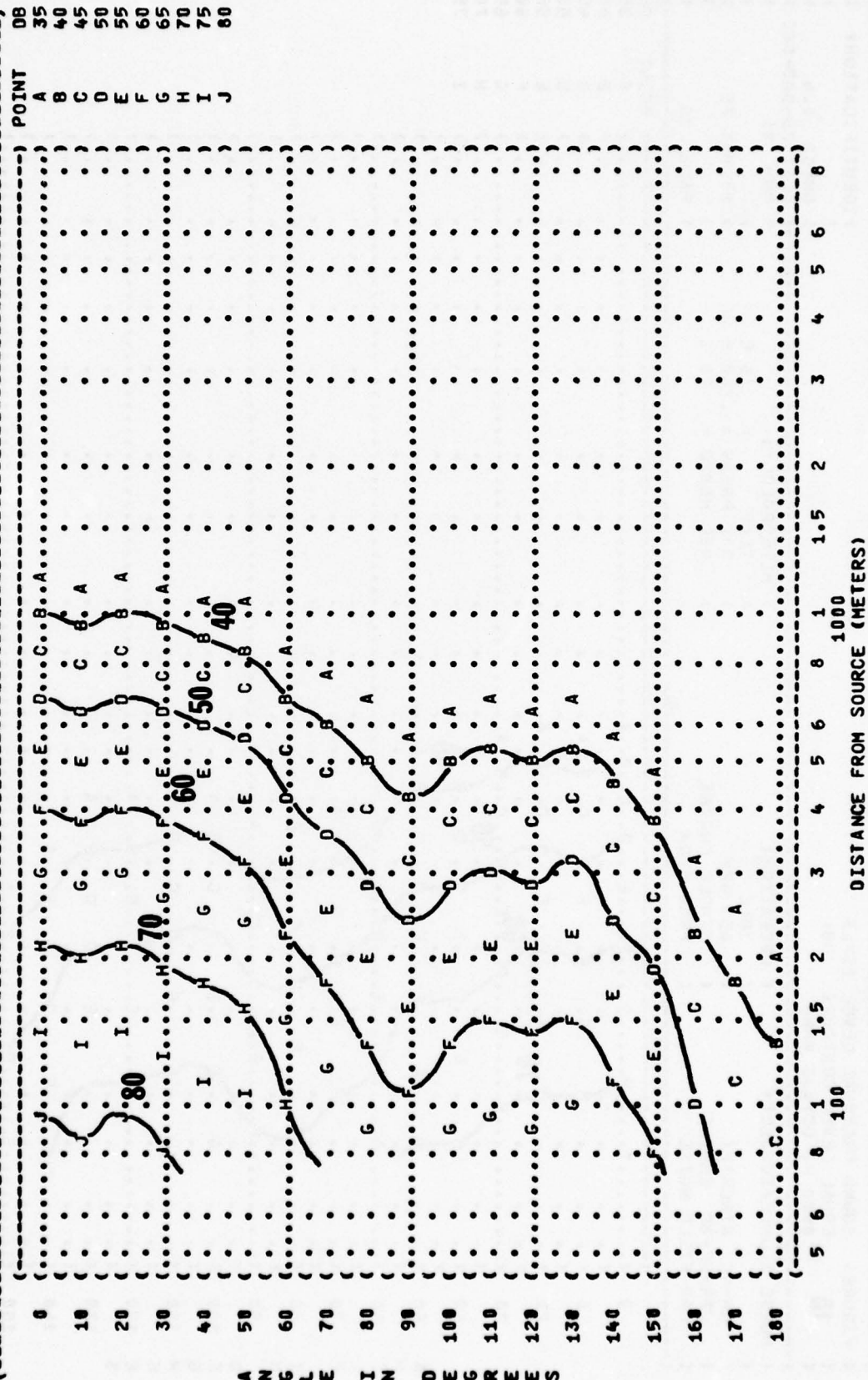
TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

POINT

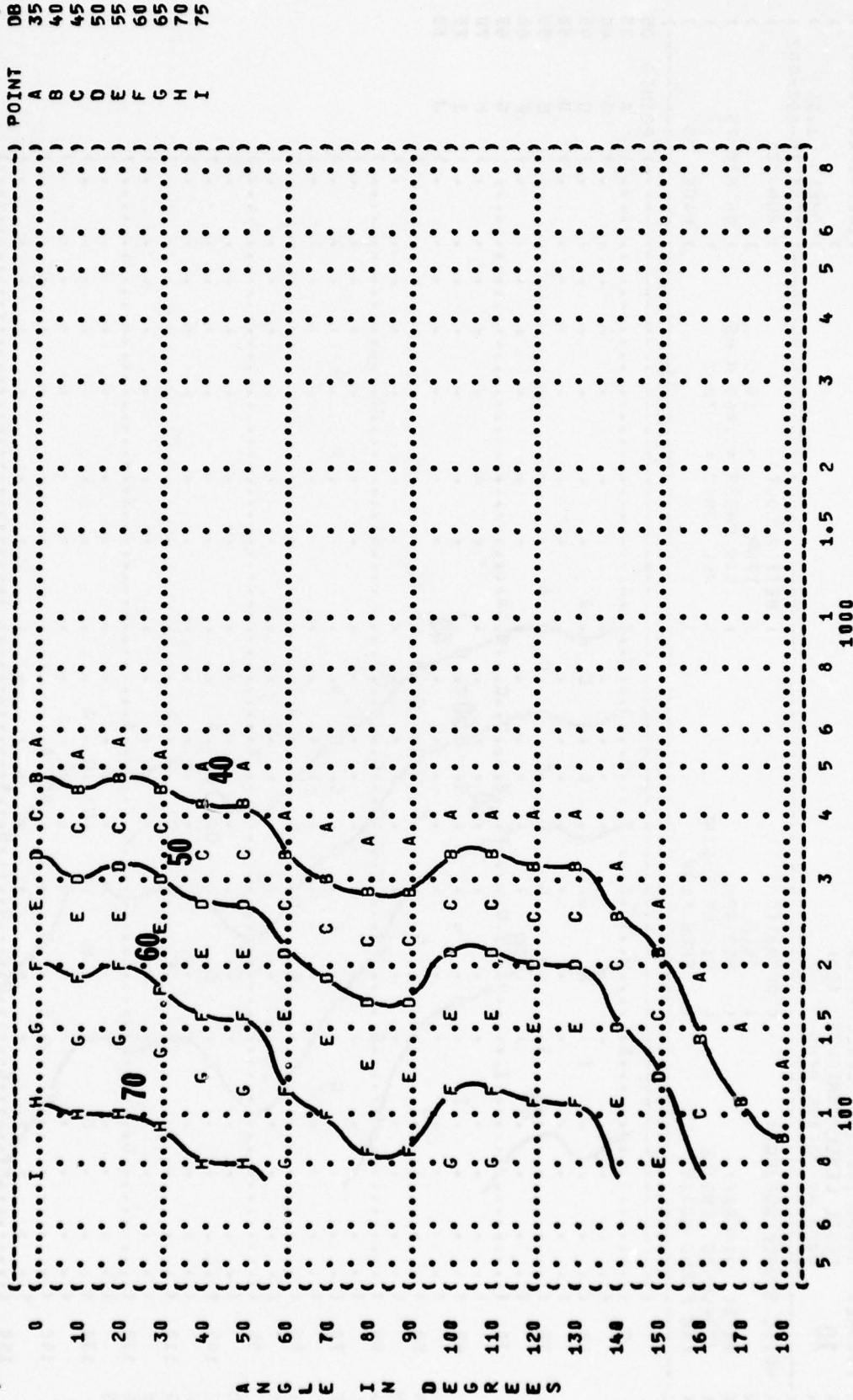
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DISTANCE FROM SOURCE (METERS)

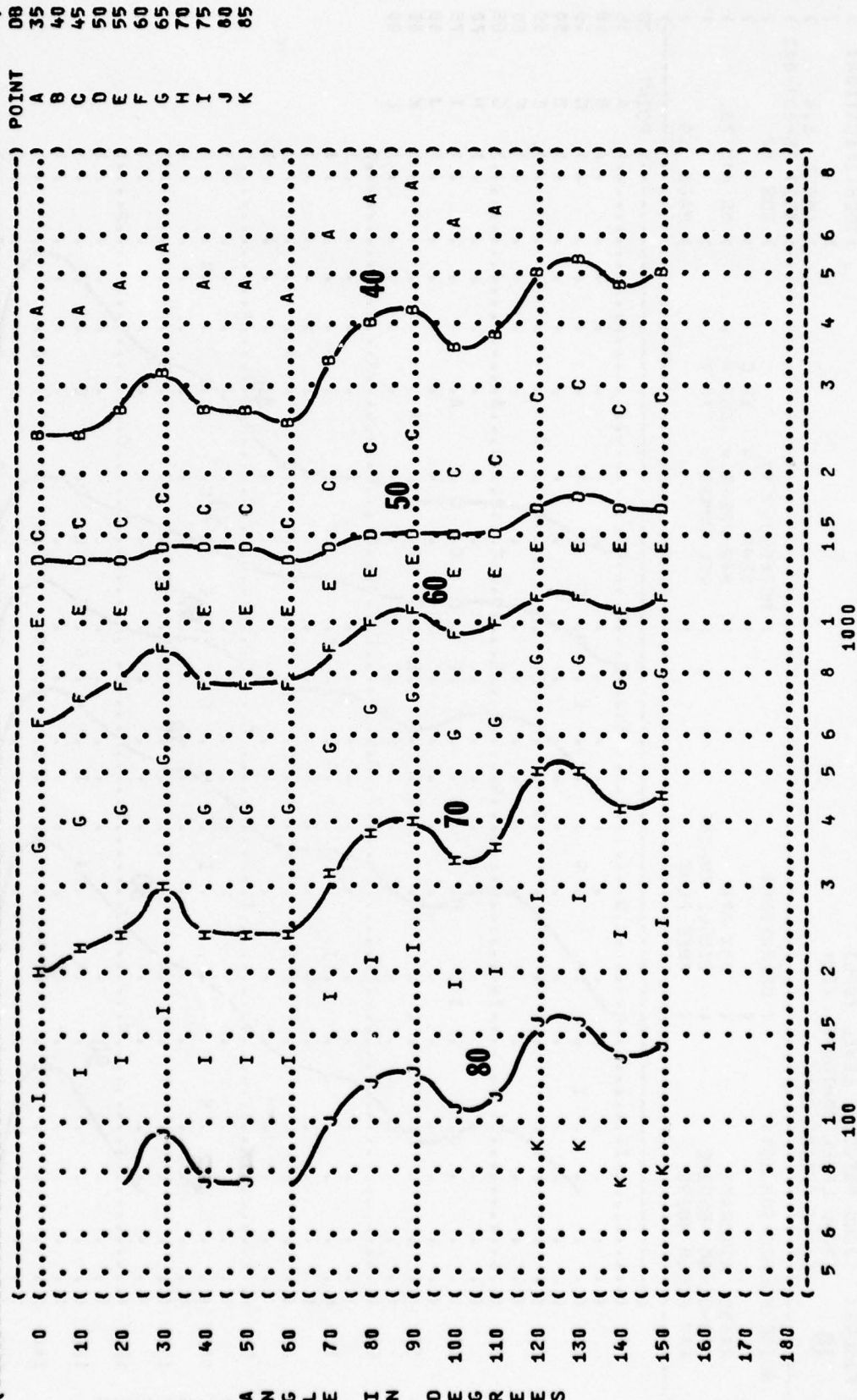
FIGURE	SOUND PRESSURE LEVEL (SPL)	IDENTIFICATION
10	EQUAL LEVEL CONTOURS (DB)	
	4000 HZ OCTAVE BAND	OMEGA 1.4
		TEST 75-002-002
NOISE SOURCE/SUBJECT	OPERATION	RUN 01
RA-5C AIRCRAFT	IDLE	
J79-GE-8C ENGINE	65% RPM	
FAR FIELD NOISE	SINGLE ENGINE	05 MAY 75
	FREE FLOW	PAGE 25



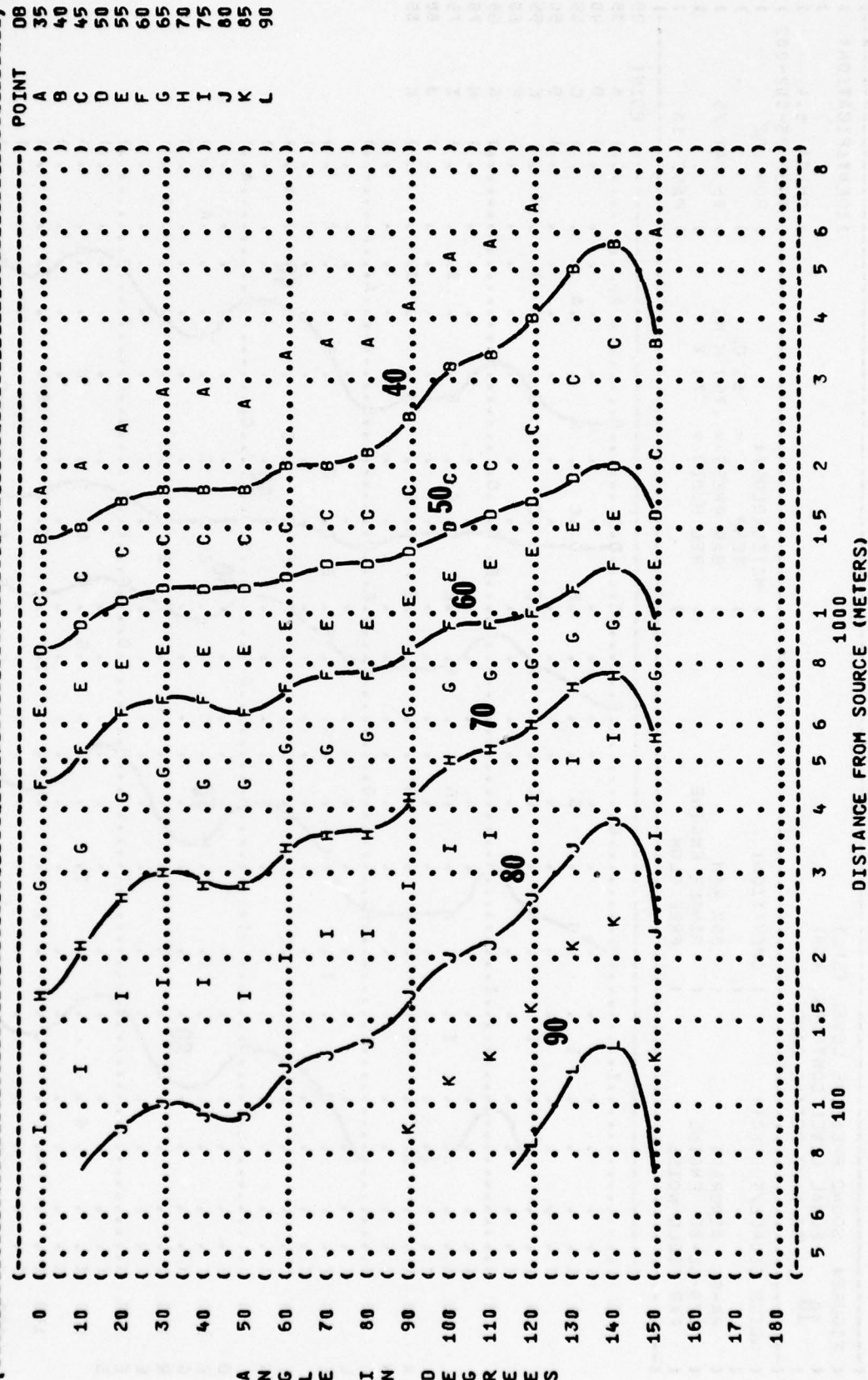
(FIGURE: SOUND PRESSURE LEVEL (SPL)
 (10 EQUAL LEVEL CONTOURS (DB)
 (8000 HZ OCTAVE BAND
 (NOISE SOURCE/SUBJECT:
 ((OPERATION:
 ((IDLE
 ((65% RPM
 ((SINGLE ENGINE
 ((FREE FLOW
 (RA-5C AIRCRAFT
 (J79-GE-8C ENGINE
 (FAR FIELD NOISE
 (METEOROLOGY:
 (TEMP = 15 C
 (BAR PRESS = .760 M HG
 (REL HUMID = 70 %
 (IDENTIFICATION:
 (OMEGA 1.4
 (TEST 75-002-002
 (RUN 01
 (05 MAY 75
 (PAGE 26



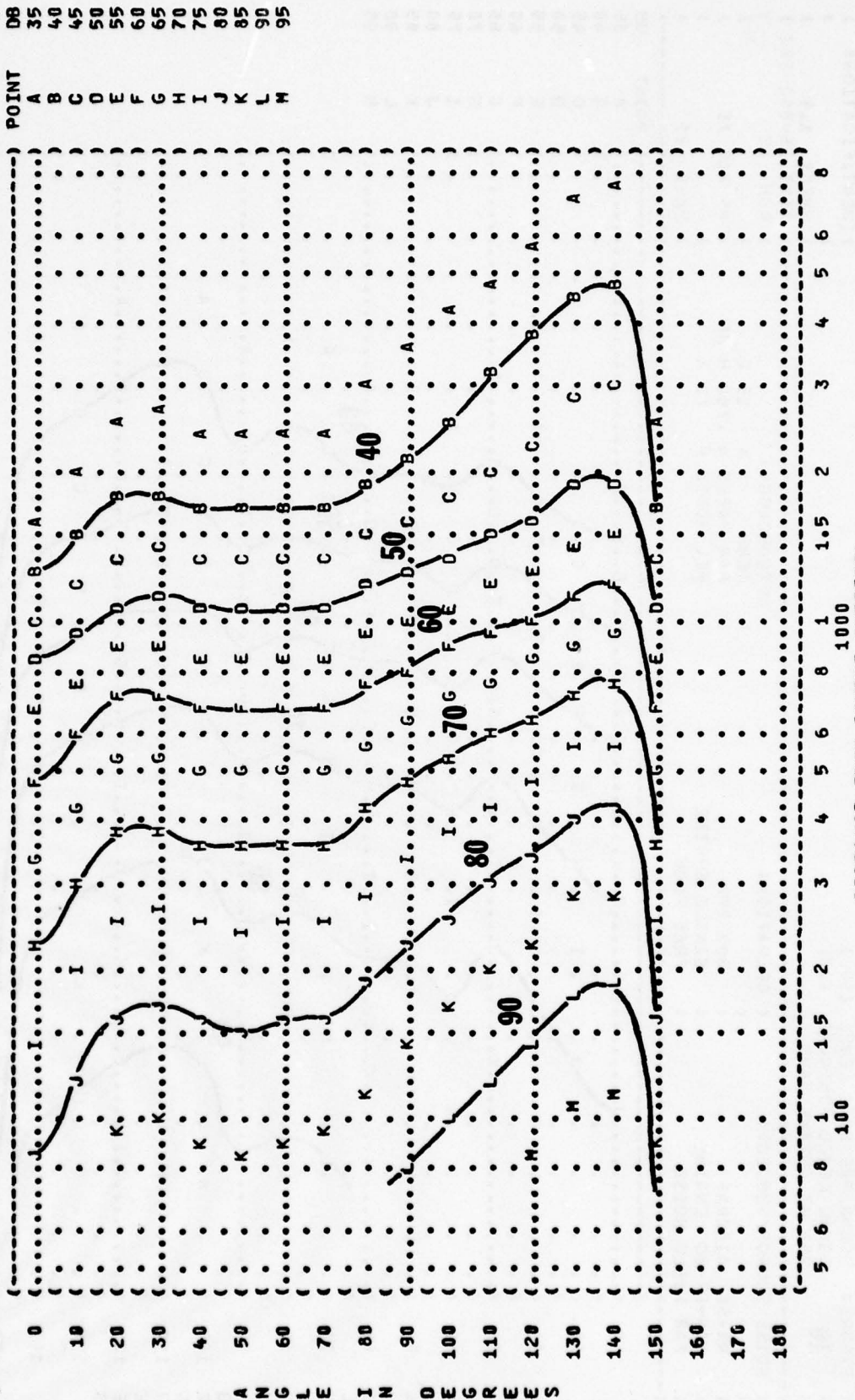
(FIGURE: SOUND PRESSURE LEVEL (SPL)
 (10 EQUAL LEVEL CONTOURS (DB)
 (31.5 HZ OCTAVE BAND
 (NOISE SOURCE/SUBJECT: (OPERATION:
 (RA-5C AIRCRAFT (80% RPM
 (J79-GE-8C ENGINE (SINGLE ENGINE
 (FAR FIELD NOISE (FREE FLOW
 (METEOROLOGY:
 (TEMP = 15 C
 (BAR PRESS = .760 M HG
 (REL HUMID = 70 %
 (PAGE 18
 (IDENTIFICATION:
 (OMEGA 1.4
 (TEST 75-002-002
 (RUN 02
 (05 MAY 75
 (



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(-----)
( FIGURE: SOUND PRESSURE LEVEL (SPL) ) IDENTIFICATION: )
(    10      EQUAL LEVEL CONTOURS (DB) ) )
(    63 HZ OCTAVE BAND ) )
(-----)
( NOISE SOURCE/SUBJECT: ) OPERATION: ) METEOROLOGY: )
( RA-5C AIRCRAFT ) ( 80% RPM ) TEMP = 15 C )
( J79-GE-8C ENGINE ) ( SINGLE ENGINE ) BAR PRESS = .760 M HG )
( FAR FIELD NOISE ) ( FREE FLOW ) REL HUMID = 70 % )
( PAGE 19 )
(-----)
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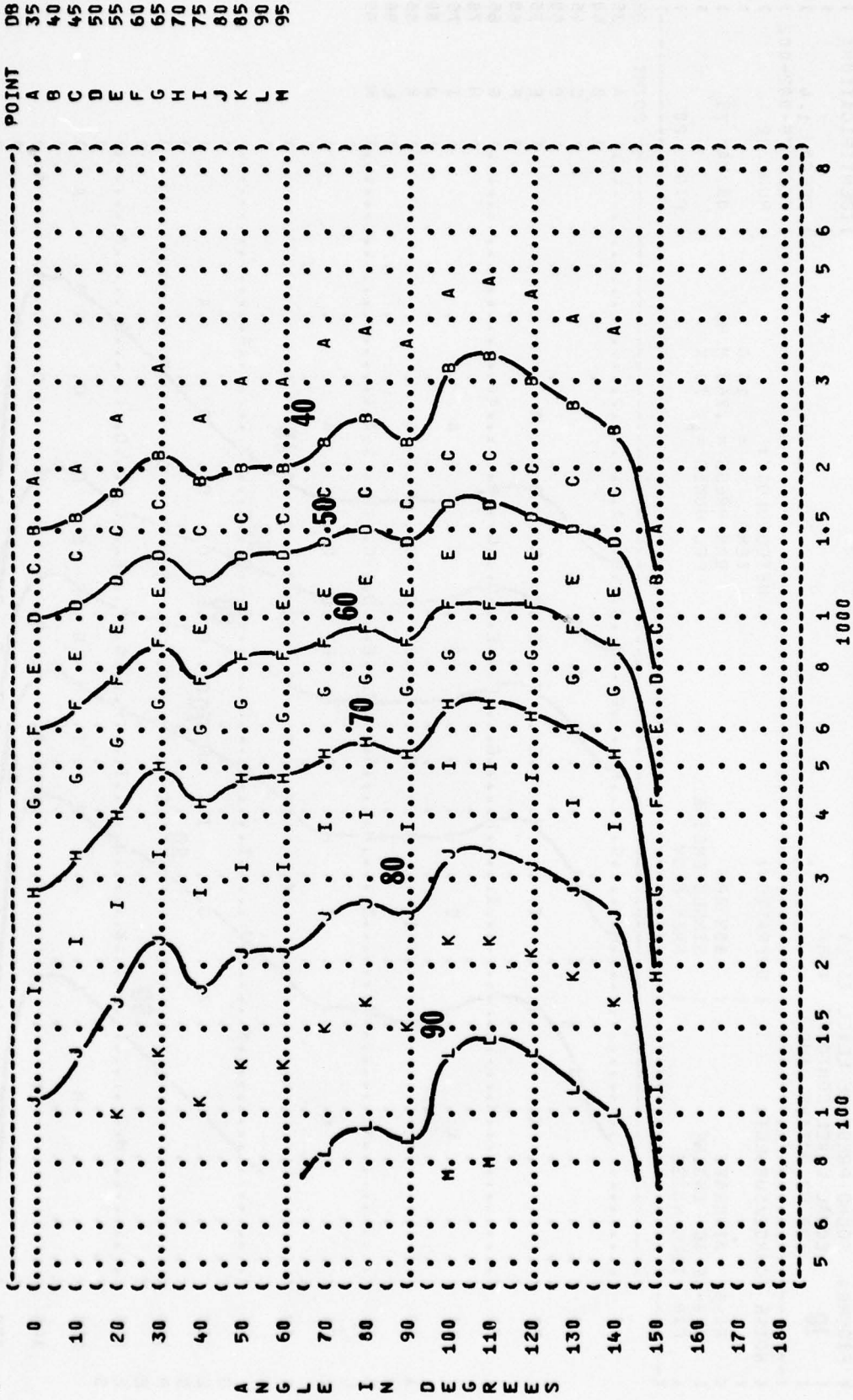


(FIGURE: SOUND PRESSURE LEVEL (SPL)
 (10 EQUAL LEVEL CONTOURS (DB)
 (125 HZ OCTAVE BAND
 (NOISE SOURCE/SUBJECT: (OPERATION:
 (RA-5C AIRCRAFT (80% RPM
 (J79-GE-8C ENGINE (SINGLE ENGINE
 (FAR FIELD NOISE (FREE FLOW
 (METEOROLOGY:
 (TEMP = 15 C
 (BAR PRESS = .760 M HG
 (REL HUMID = 70 %
 (IDENTIFICATION:
 (OMEGA 1.4
 (TEST 75-002-002
 (RUN 02
 (05 MAY 75
 (PAGE 20



A M G L E I N D E G R E E S

(FIGURE: SOUND PRESSURE LEVEL {SPL})
 (10 EQUAL LEVEL CONTOURS (DB))
 (250 HZ OCTAVE BAND)
 (NOISE SOURCE/SUBJECT:)
 (RA-5C AIRCRAFT)
 (J79-GE-8C ENGINE)
 (FAR FIELD NOISE)
 (OPERATION:)
 (80% RPM)
 (SINGLE ENGINE)
 (FREE FLOW)
 (METEOROLOGY:)
 (TEMP = 15 C)
 (BAR PRESS = .760 M HG)
 (REL HUMID = 70 %)
 (IDENTIFICATION:)
 (OMEGA 1.4)
 (TEST 75-002-002)
 (RUN 02)
 (05 MAY 75)
 (PAGE 21)



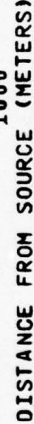
A N G L E I N D E G R E E S

IDENTIFICATION:
OMEGA 1.4

1) METEOROLOGY:

TEMP = 15 C
BAR PRESS = .760 M HG
REL HUMID = 70 %

05 MAY 75
PAGE 22



(FIGURE: SOUND PRESSURE LEVEL (SPL)
 (10 EQUAL LEVEL CONTOURS (DB)
 (1000 HZ OCTAVE BAND
 (NOISE SOURCE/SUBJECT: (OPERATION:
 (RA-5C AIRCRAFT (60% RPM
 (J79-GE-8C ENGINE (SINGLE ENGINE
 (FAR FIELD NOISE (FREE FLOW
 (METEOROLOGY: (TEMP = 15 C
 (BAR PRESS = .760 M HG
 (REL HUMID = 70 %
 (IDENTIFICATION: (OMEGA 1.4
 (TEST 75-002-002
 (RUN 02
 (05 MAY 75
 (PAGE 23

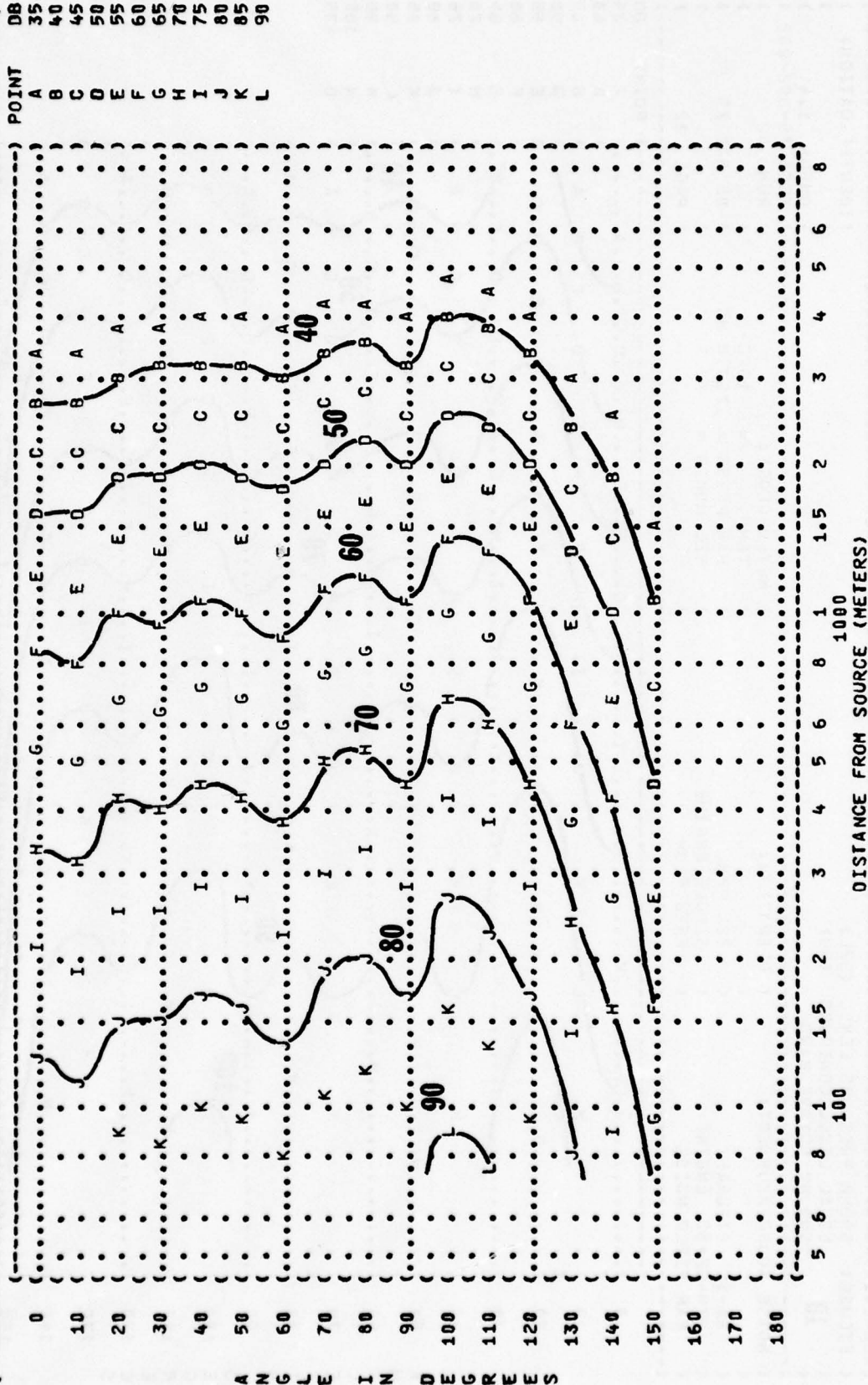
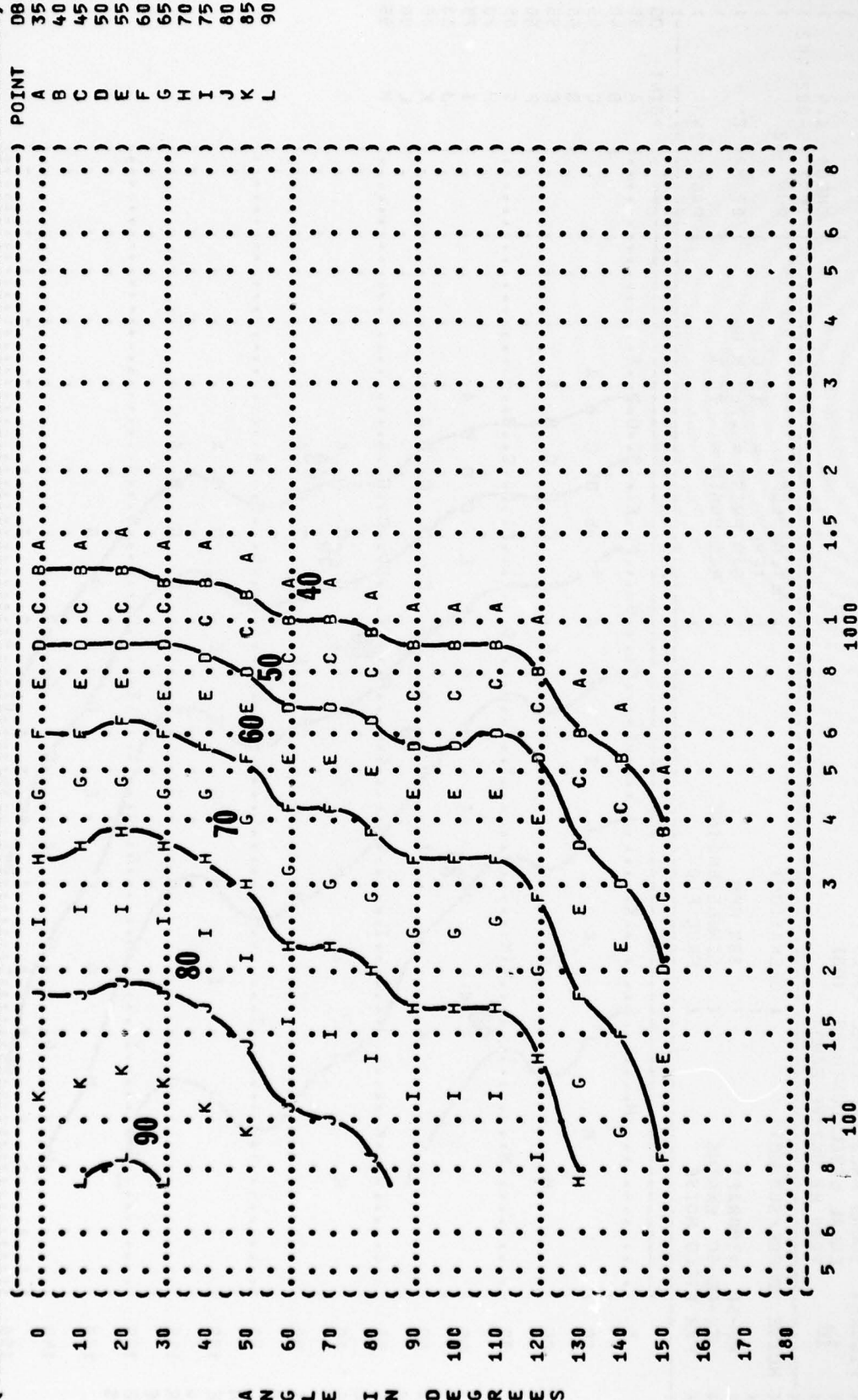


FIGURE: SOUND PRESSURE LEVEL (SPL)
 10 EQUAL LEVEL CONTOURS (DB)
 4000 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT: (OPERATION:) METEOROLOGY: (TEMP = 15 C)
 (RA-5C AIRCRAFT (80% RPM) BAR PRESS = .760 M HG)
 (J79-GE-8C ENGINE (SINGLE ENGINE) REL HUMID = 70 %)
 (FAR FIELD NOISE (FREE FLOW))

IDENTIFICATION: ()
 ()
 () OMEGA 1.4
 () TEST 75-002-002
 () RUN 02
 () 05 MAY 75
 () PAGE 25



ANGLE IN DEGREES

FIGURE 1 SOUND PRESSURE LEVEL (SPL)
 EQUAL LEVEL CONTOURS (DB)
 8000 HZ OCTAVE BAND

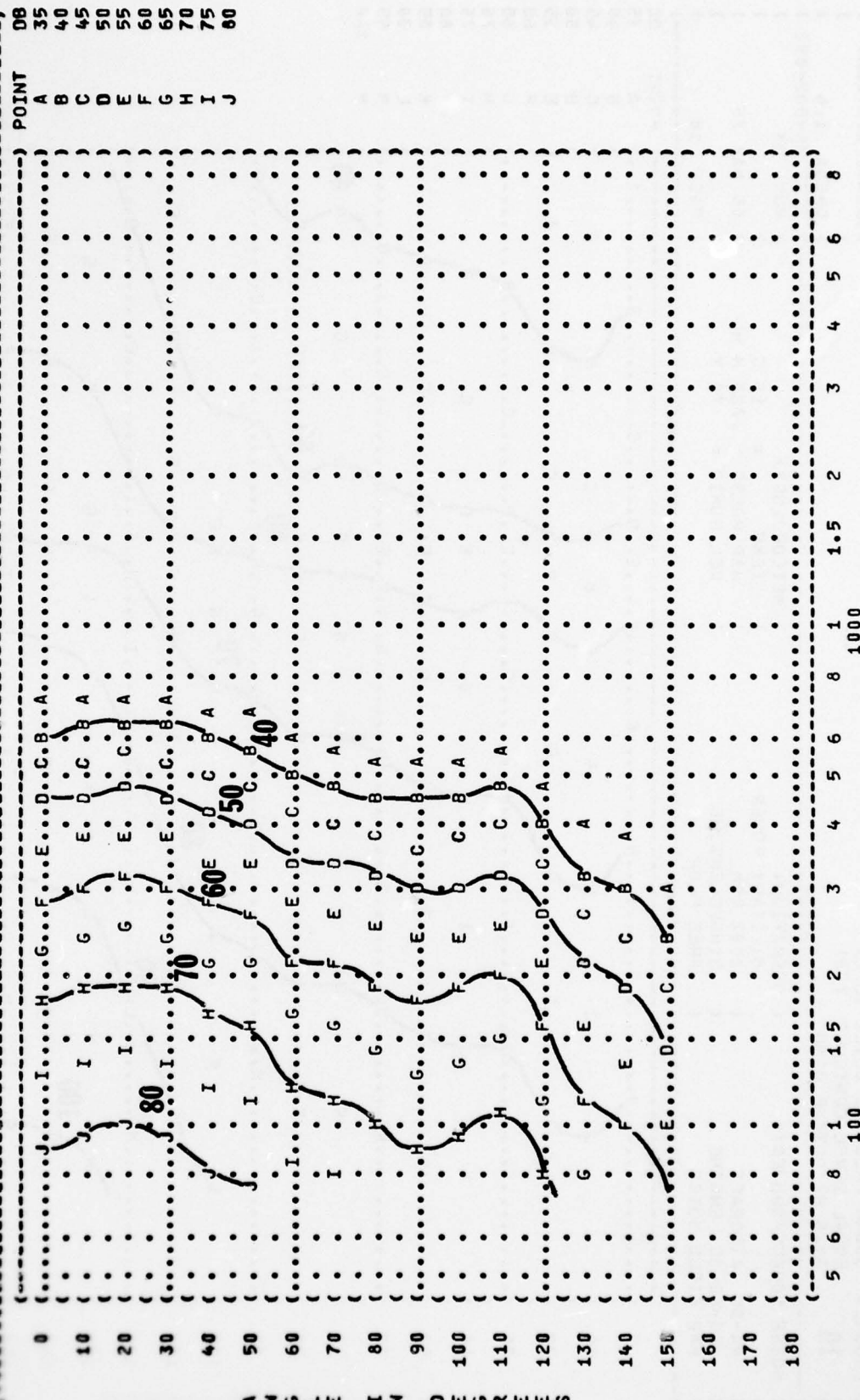
IDENTIFICATION:
 OMEGA 1.4
 TEST 75-002-002
 RUN 02

METEOROLOGY:
 TEMP = 15 C
 BAR PRESS = .760 M HG
 REL HUMID = 70 %

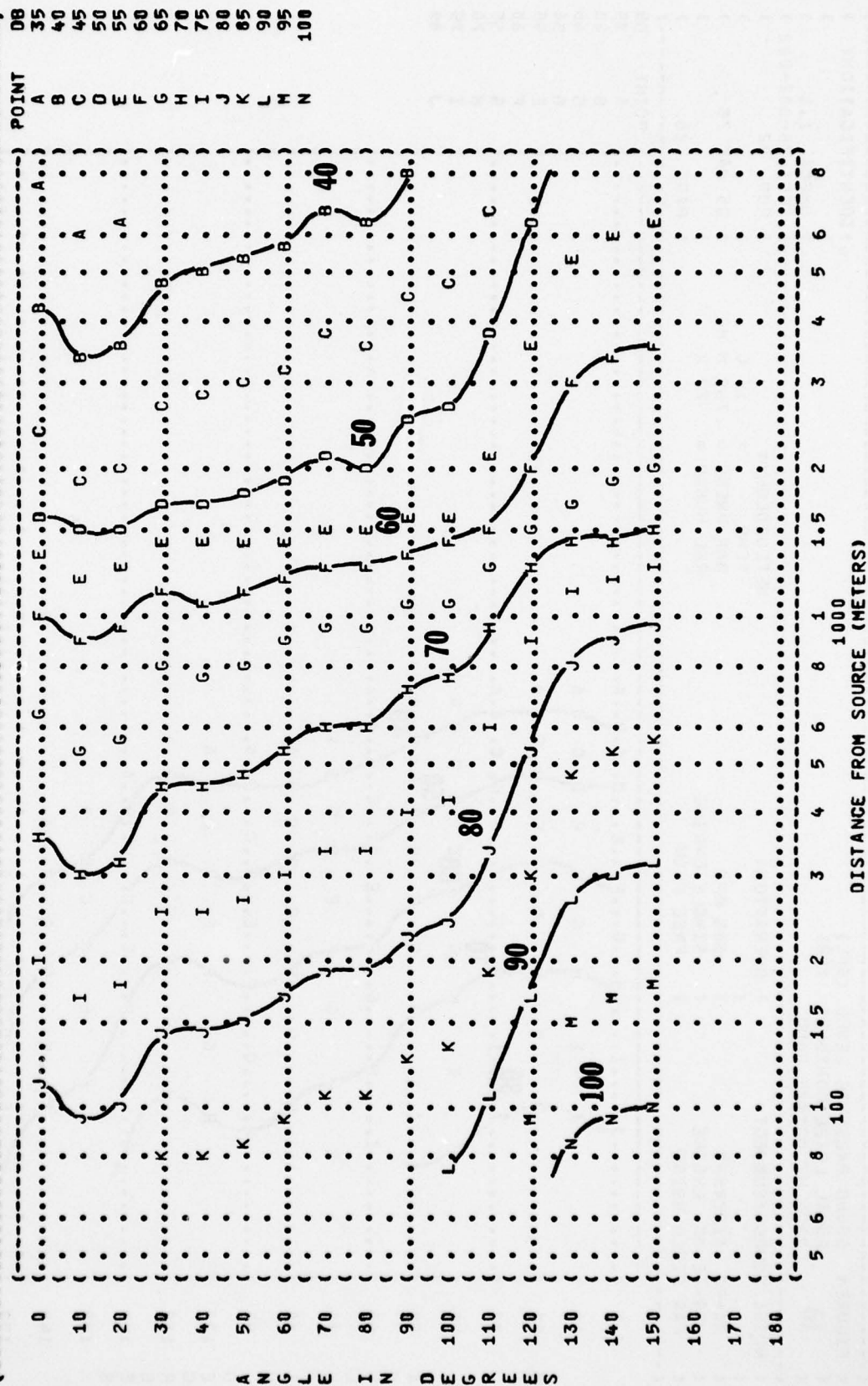
OPERATION:
 80% RPM
 SINGLE ENGINE
 FREE FLOW

NOISE SOURCE/SUBJECT:
 RA-5C AIRCRAFT
 J79-GE-8C ENGINE
 FAR FIELD NOISE

PAGE 26



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(-----)
( FIGURE: SOUND PRESSURE LEVEL {SPL} ) IDENTIFICATION: )
( EQUAL LEVEL CONTOURS (DB) ) )
( 10 ) OMEGA 1.4 )
( 31.5 HZ OCTAVE BAND ) TEST 75-002-002 )
( NOISE SOURCE/SUBJECT: ) METEOROLOGY: ) RUN 03 )
( OPERATION: ) ) )
( MILITARY POWER ) TEMP = 15 C )
( 100% RPM ) BAR PRESS = .760 M HG )
( SINGLE ENGINE ) REL HUMID = 70 % )
( FREE FLOW ) ) PAGE 18 )
(RA-5C AIRCRAFT )
(J79-GE-8C ENGINE )
(FAR FIELD NOISE )
```



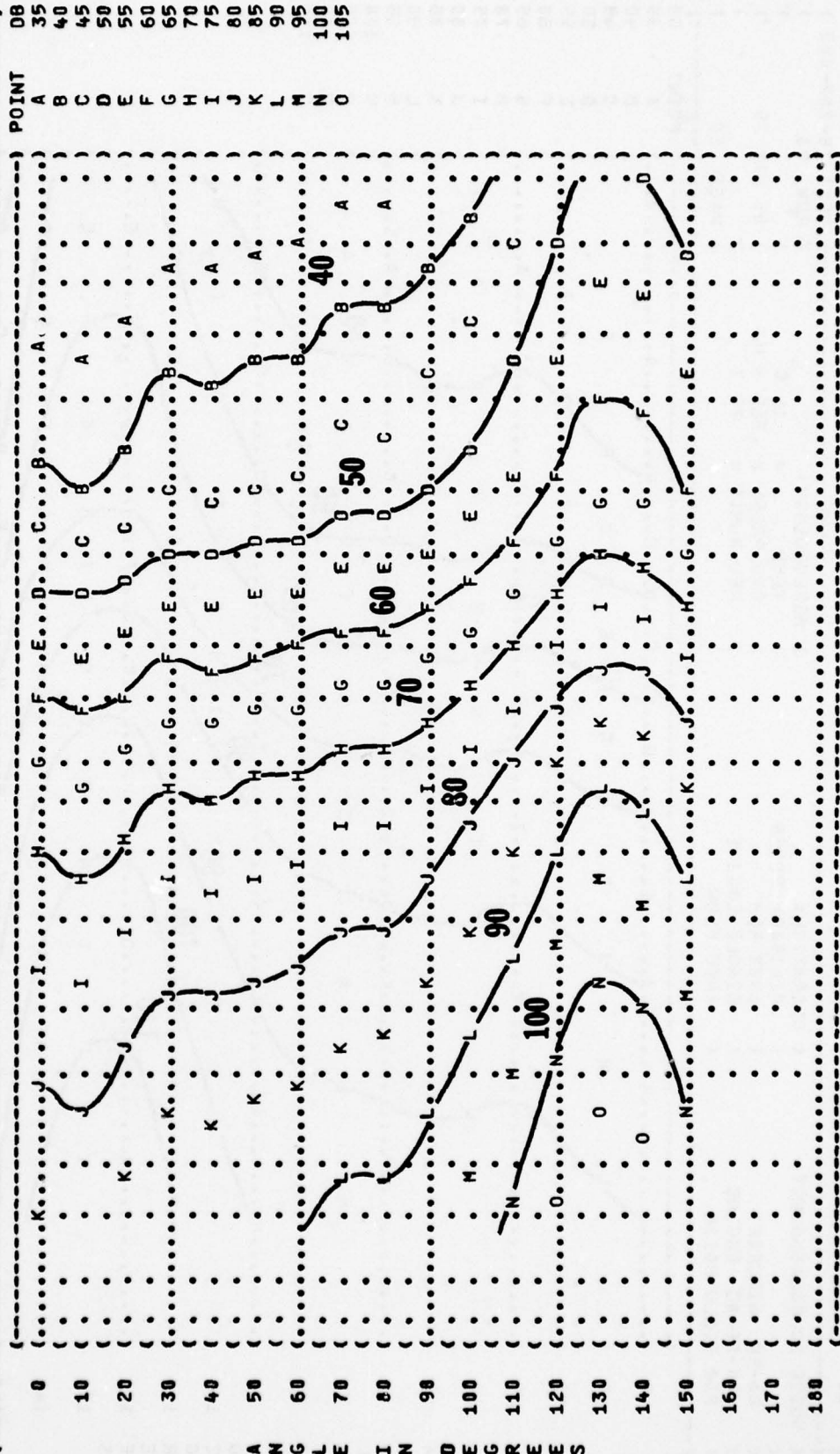
ANGLE IN DEGREES

FIGURE: SOUND PRESSURE LEVEL (SPL)
 10 EQUAL LEVEL CONTOURS (DB)
 63 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT: OPERATION:
 RA-5C AIRCRAFT MILITARY POWER
 J79-GE-8C ENGINE 100% RPM
 FAR FIELD NOISE SINGLE ENGINE
 FREE FLOW

METEOROLOGY:
 TEMP = 15 C
 BAR PRESS = .760 M HG
 REL HUMID = 70 %

IDENTIFICATION:
 OMEGA 1.4
 TEST 75-002-002
 RUN 03
 05 MAY 75
 PAGE 19



IDENTIFICATION:
OMEGA 1.4

OMEGA 1.4

TEST 75-002-002

METEOROLOGY:

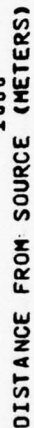
TEMP = 15 C

BAR PRESS = .760 M HG

REL HUMID = 70 %

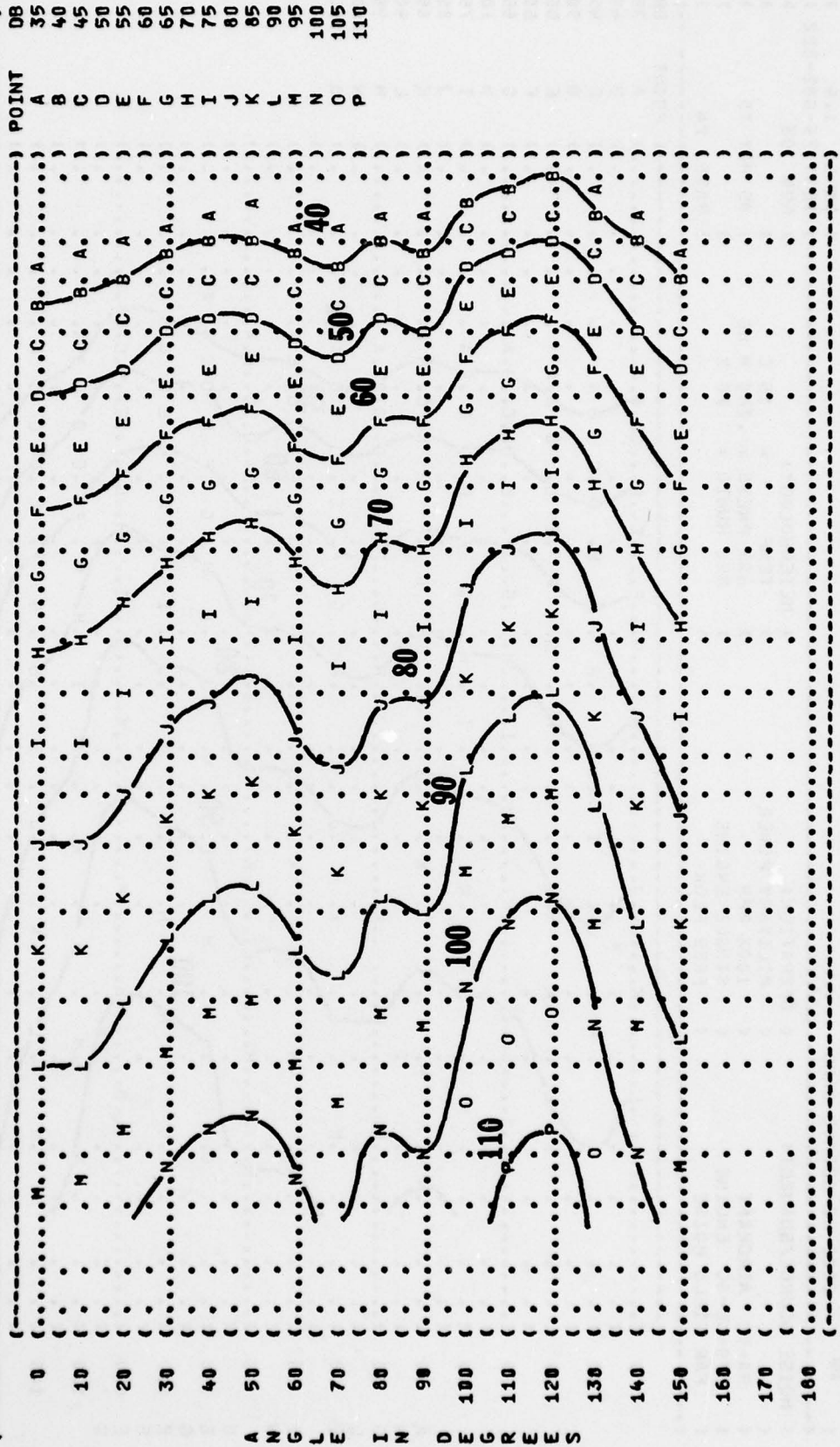
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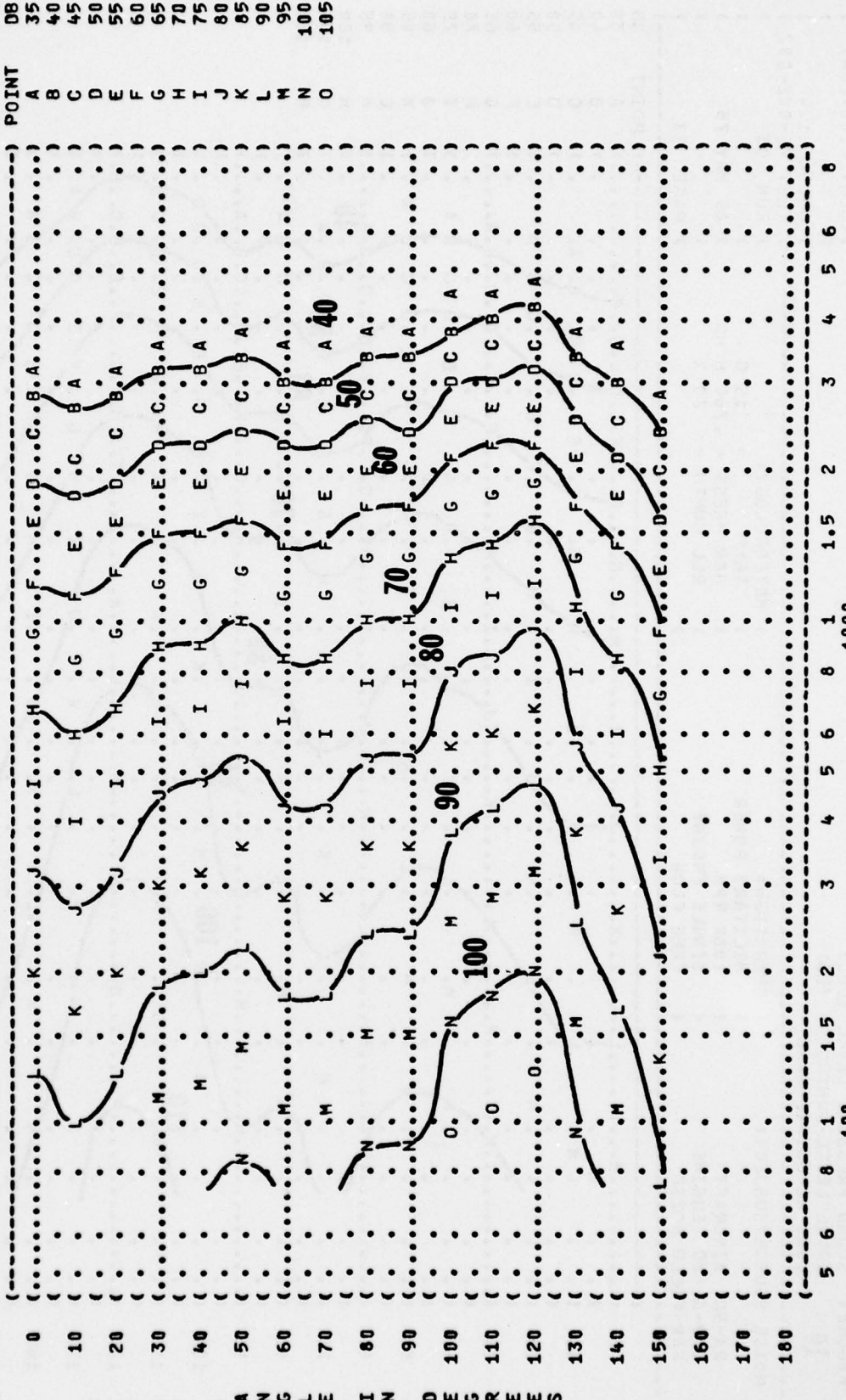
ANGLE IN DEGREES

(FIGURE: SOUND PRESSURE LEVEL (SPL)
 (10 EQUAL LEVEL CONTOURS (DB)
 (1000 HZ OCTAVE BAND
 (NOISE SOURCE/SUBJECT:
 ((OPERATION:
 ((MILITARY POWER
 ((100% RPM
 ((SINGLE ENGINE
 ((FREE FLOW
 (RA-5C AIRCRAFT
 (J79-GE-8C ENGINE
 (FAR FIELD NOISE
 (METEOROLOGY:
 (TEMP = 15 C
 (BAR PRESS = .760 M HG
 (REL HUMID = 70 %
 (PAGE 23
 (IDENTIFICATION:
 (OMEGA 1.4
 (TEST 75-002-002
 (RUN 03



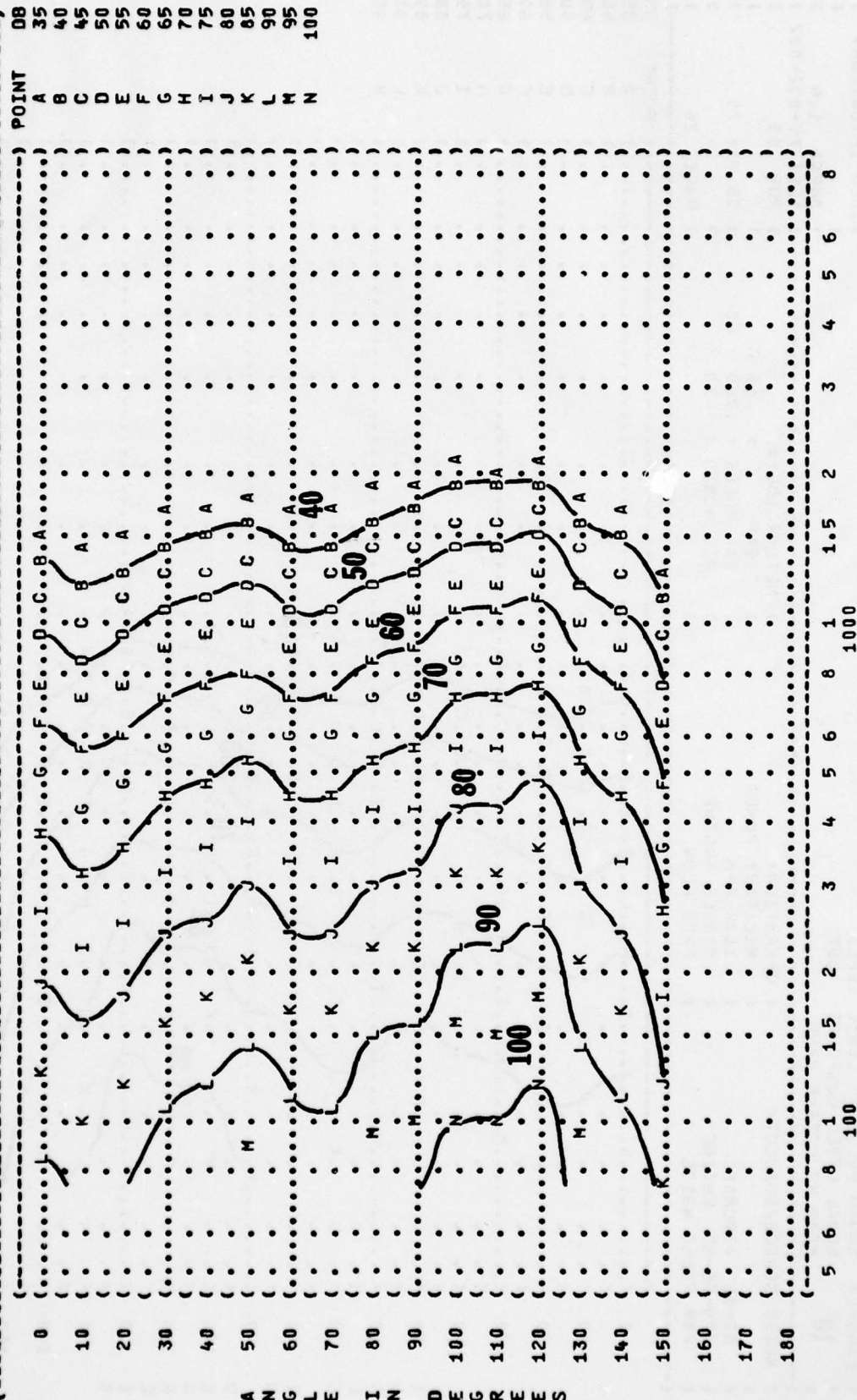
DISTANCE FROM SOURCE (METERS)

(FIGURE: SOUND PRESSURE LEVEL (SPL)
 (10 EQUAL LEVEL CONTOURS (DB)
 (2000 HZ OCTAVE BAND
 (NOISE SOURCE/SUBJECT: (OPERATIONS: (METEOROLOGY: (IDENTIFICATION:)
 (RA-5C AIRCRAFT (MILITARY POWER () OMEGA 1.4
 (J79-GE-8C ENGINE (100% RPM () TEST 75-002-002
 (FAR FIELD NOISE (SINGLE ENGINE () RUN 03
 () FREE FLOW () 05 MAY 75
 () () () PAGE 24
 () () () ()



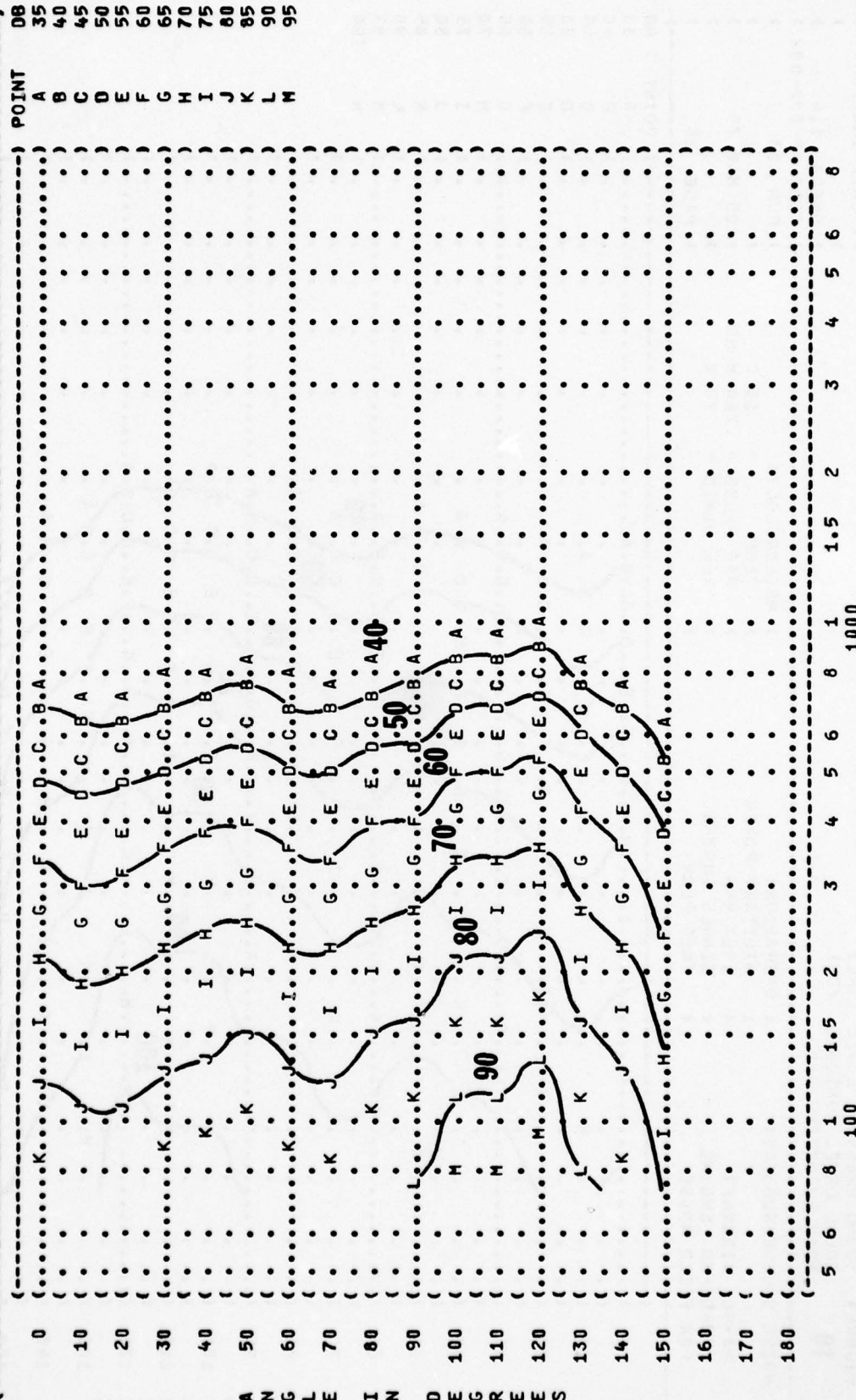
DISTANCE FROM SOURCE (METERS)

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(-----)
( FIGURE: SOUND PRESSURE LEVEL {SPL} ) IDENTIFICATION: )
( EQUAL LEVEL CONTOURS (DB) ) )
( 10 ) OMEGA 1.4 )
( 4000 HZ OCTAVE BAND ) TEST 75-002-002 )
(-----)
( NOISE SOURCE/SUBJECT: ) METEOROLOGY: )
( OPERATION: ) TEMP = 15 C )
( MILITARY POWER ) BAR PRESS = .760 M HG )
( 100% RPM ) REL HUMID = 70 % )
( SINGLE ENGINE ) )
( FREE FLOW ) PAGE 25 )
( RA-5C AIRCRAFT ) )
( J79-GE-8C ENGINE ) )
( FAR FIELD NOISE ) )
```



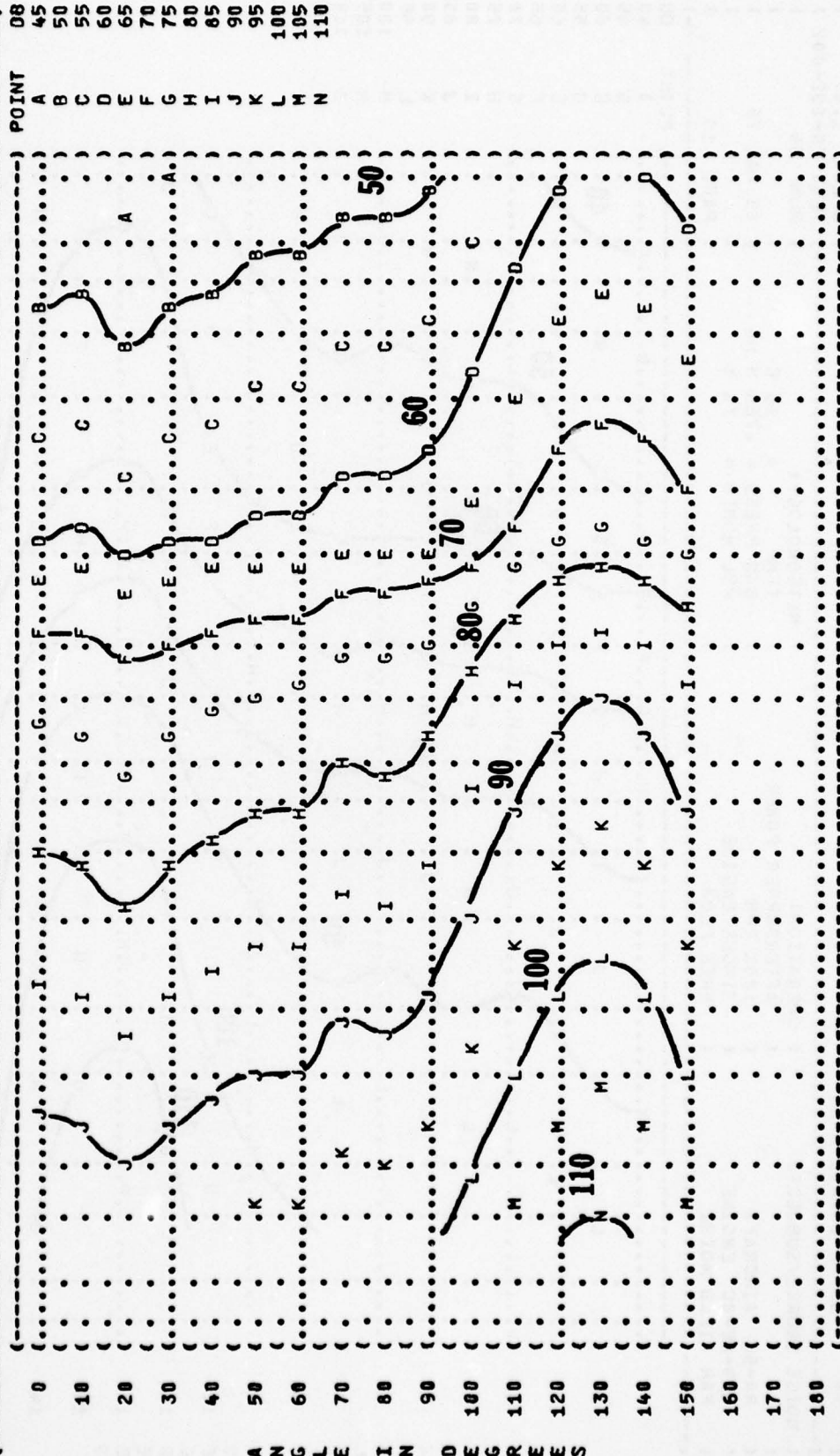
DISTANCE FROM SOURCE (METERS)

(FIGURE: SOUND PRESSURE LEVEL (SPL)
 (10 EQUAL LEVEL CONTOURS (DB)
 (8000 HZ OCTAVE BAND
 (NOISE SOURCE/SUBJECT: (OPERATION: (METEOROLOGY: (POINT DB
 (RA-5C AIRCRAFT (MILITARY POWER (TEMP = 15 C (A 35
 (J79-GE-8C ENGINE (100% RPM (BAR PRESS = .760 M HG (B 40
 (FAR FIELD NOISE (SINGLE ENGINE (REL HUMID = 70 % (C 45
 ((FREE FLOW ((D 50
 ((((E 55
 ((((F 60
 ((((G 65
 ((((H 70
 ((((I 75
 ((((J 80
 ((((K 85
 ((((L 90
 ((((M 95



A N G L E I N D E G R E E S

(FIGURE: SOUND PRESSURE LEVEL (SPL)
 (10 EQUAL LEVEL CONTOURS (DB)
 (31.5 HZ OCTAVE BAND
 (NOISE SOURCE/SUBJECT: (OPERATION:) METEOROLOGY:)
 (RA-5C AIRCRAFT (AFTERBURNER POWER) TEMP = 15 C
 (J79-GE-8C ENGINE (100% RPM) BAR PRESS = .760 M HG
 (FAR FIELD NOISE (SINGLE ENGINE) REL HUMID = 70 %
 (FREE FLOW))
 () PAGE 10)
 (IDENTIFICATION:)
 () OMEGA 1.4
 (TEST 75-002-002)
 (RUN 04)



(FIGURE: SOUND PRESSURE LEVEL (SPL)
 (EQUAL LEVEL CONTOURS (DB)
 (10 125 HZ OCTAVE BAND
 (NOISE SOURCE/SUBJECT:
 ((OPERATION:
 ((AFTERBURNER POWER
 ((100% RPM
 ((SINGLE ENGINE
 ((FREE FLOW
 (RA-5C AIRCRAFT
 (J79-GE-8C ENGINE
 (FAR FIELD NOISE
 (METEOROLOGY:
 (TEMP = 15 C
 (BAR PRESS = .760 M HG
 (REL HUMID = 70 %
 (IDENTIFICATION:
 (OMEGA 1.4
 (TEST 75-002-002
 (RUN 04
 (05 MAY 75
 (PAGE 20

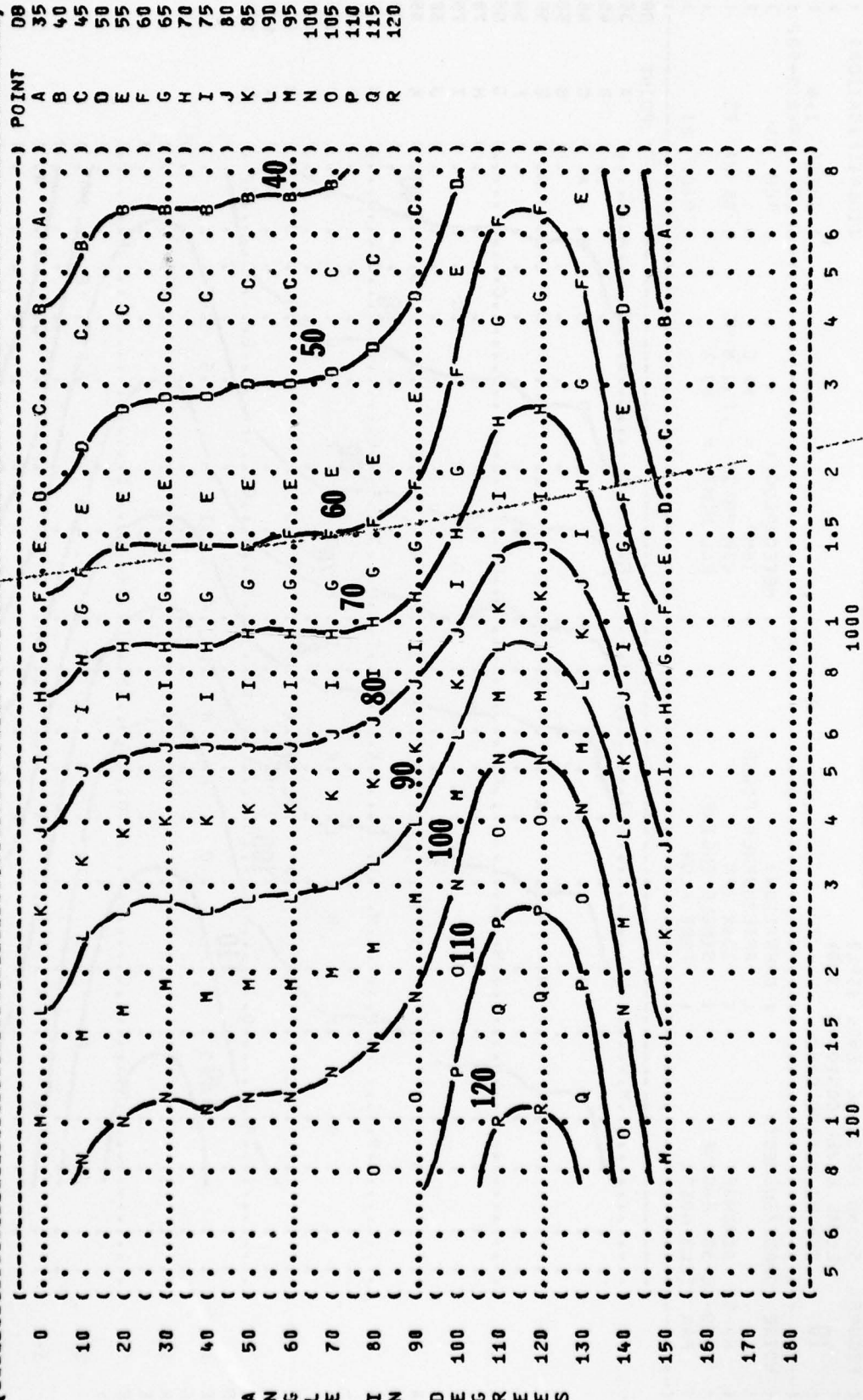


FIGURE: SOUND PRESSURE LEVEL (SPL)
 EQUAL LEVEL CONTOURS (DB)
 250 HZ OCTAVE BAND

10

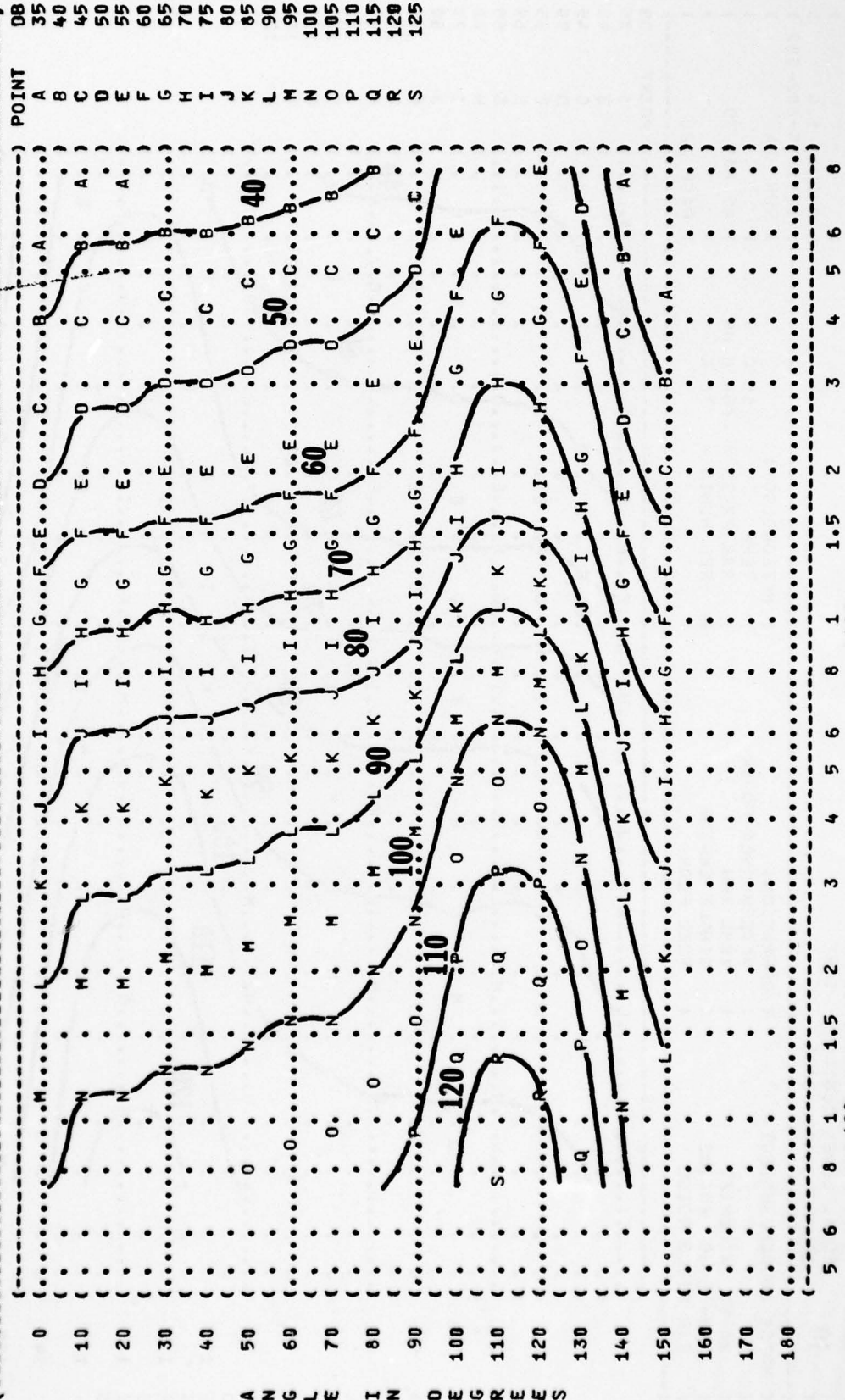
IDENTIFICATION:
 OMEGA 1.4
 TEST 75-002-002
 RUN 04

NOISE SOURCE/SUBJECT:
 OPERATION:
 AFTERBURNER POWER
 100% RPM
 SINGLE ENGINE
 FREE FLOW

METEOROLOGY:
 TEMP = 15 C
 BAR PRESS = .760 M HG
 REL HUMID = 70 %

RA-5C AIRCRAFT
 J79-GE-8C ENGINE
 FAR FIELD NOISE

05 MAY 75
 PAGE 21



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USAF BIOENVIRONMENTAL NOISE DATA HANDBOOK. VOLUME 93. RA-5C AIR--ETC(U)
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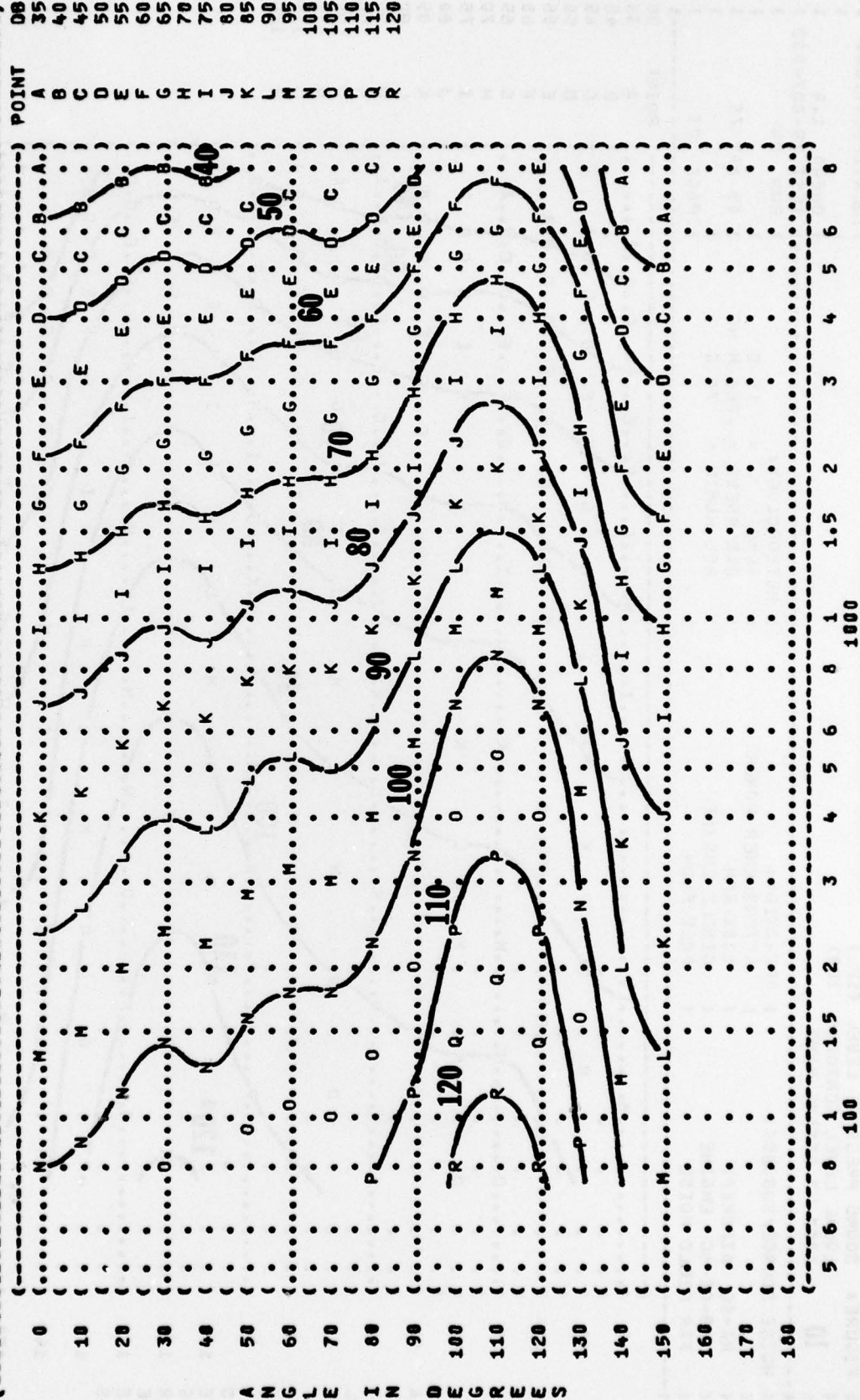
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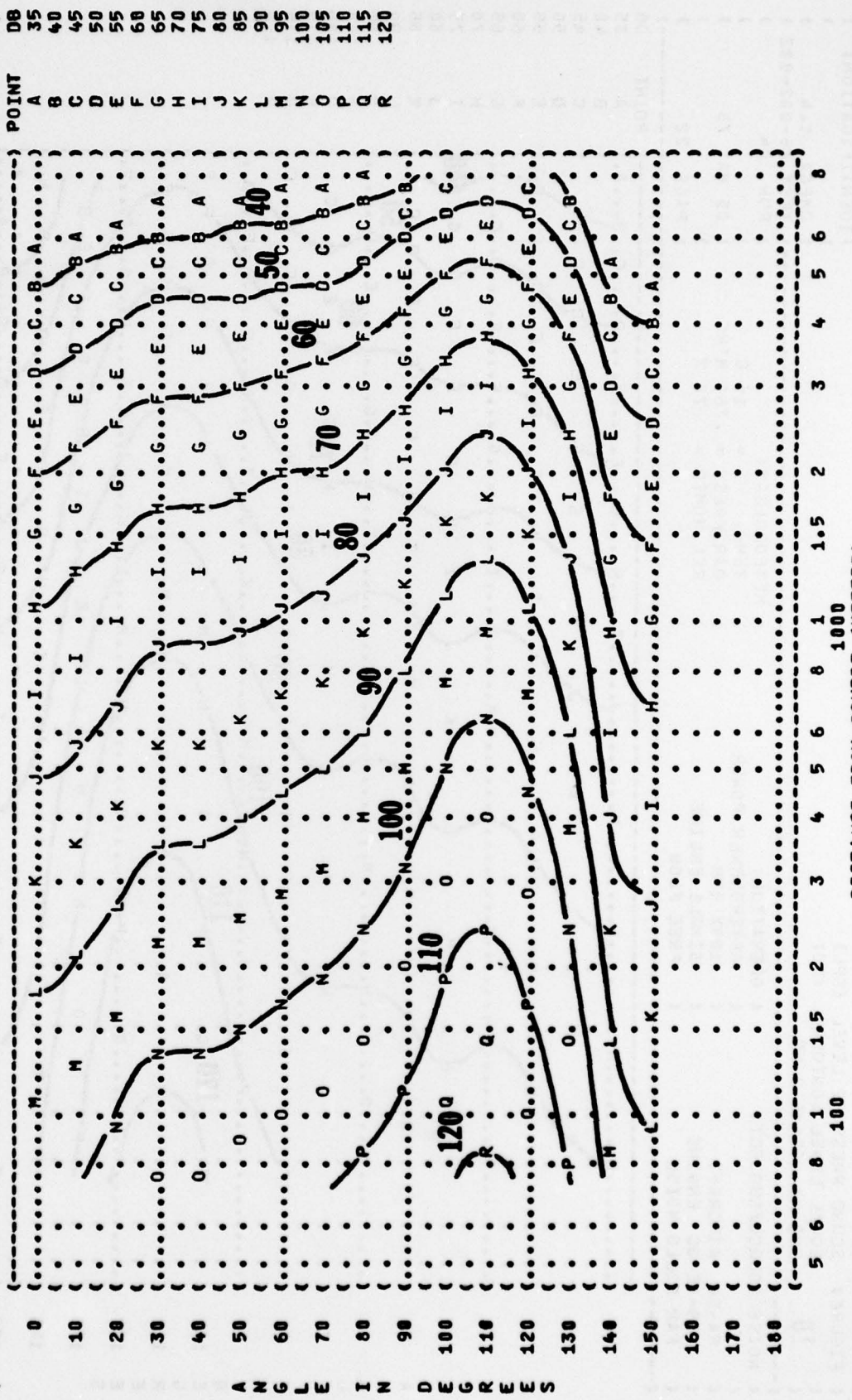
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DDC

(FIGURE: SOUND PRESSURE LEVEL (SPL)
 (EQUAL LEVEL CONTOURS (DB)
 (10 500 HZ OCTAVE BAND
 (NOISE SOURCE/SUBJECT: (OPERATION:
 ((AFTERBURNER POWER
 ((100% RPM
 ((SINGLE ENGINE
 ((FREE FLOW
 (RA-5C AIRCRAFT
 (J79-GE-8C ENGINE
 (FAR FIELD NOISE
 (METEOROLOGY:
 (TEMP = 15 C
 (BAR PRESS = .760 M HG
 (REL HUMID = 70 %
 (PAGE 22
 (IDENTIFICATION:
 (OMEGA 1.4
 (TEST 75-002-002
 (RUN 04
 (05 MAY 75
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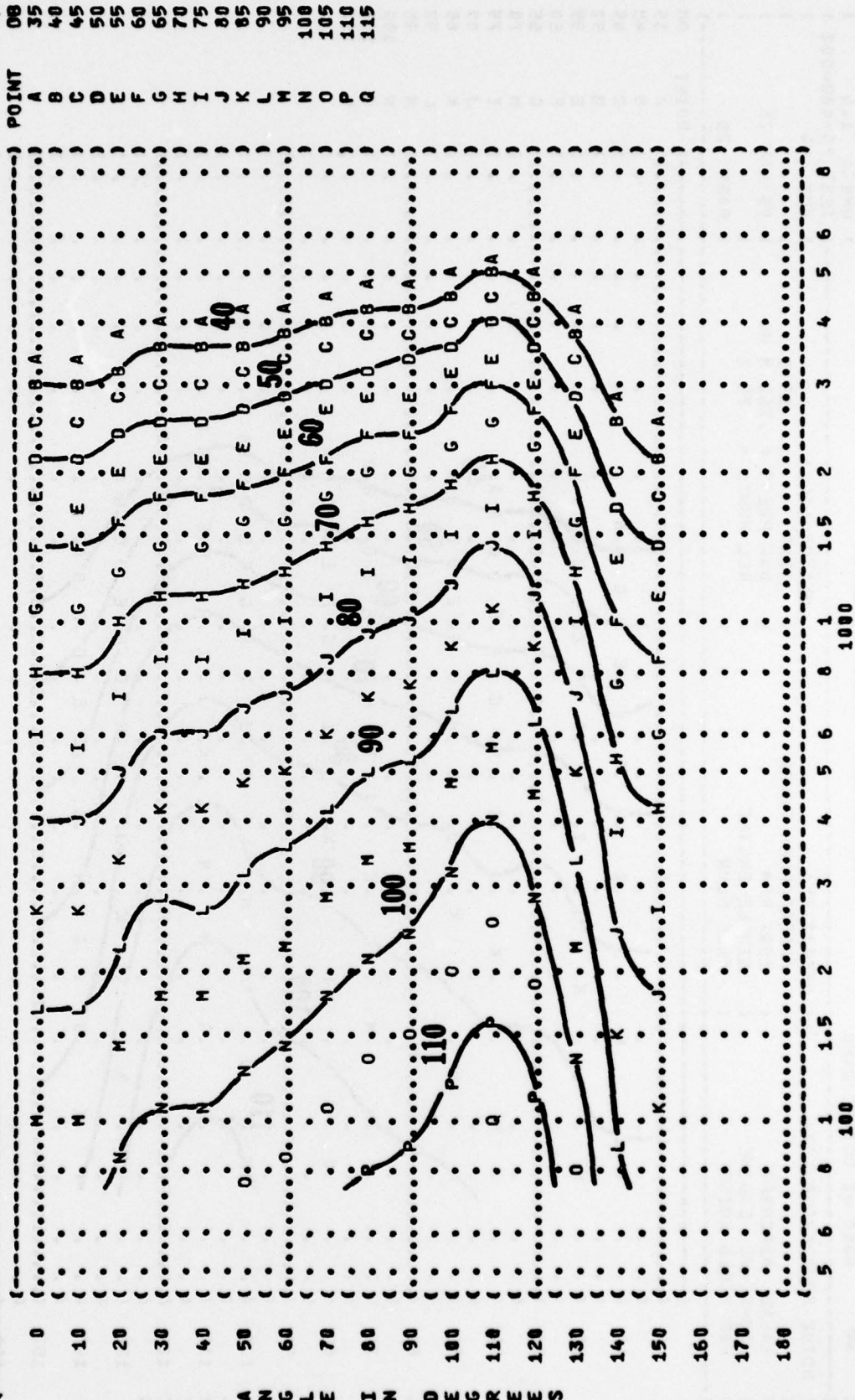


(FIGURE: SOUND PRESSURE LEVEL (SPL))
 (10 EQUAL LEVEL CONTOURS (DB))
 (1000 HZ OCTAVE BAND)
 (NOISE SOURCE/SUBJECT:)
 ((OPERATION:) METEOROLOGY:)
 ((AFTERBURNER POWER) TEMP = 15 C)
 ((100% RPM) BAR PRESS = .760 M HG)
 ((SINGLE ENGINE) REL HUMID = 70 %)
 ((FREE FLOW))
 (RA-5C AIRCRAFT)
 (J79-GE-8C ENGINE)
 (FAR FIELD NOISE)
 (IDENTIFICATION:)
 () OMEGA 1.4)
 (TEST 75-002-002)
 (RUN 04)
 (05 MAY 75)
 ()
 () PAGE 23)



DISTANCE FROM SOURCE (METERS)

(FIGURE: SOUND PRESSURE LEVEL (SPL)
 (EQUAL LEVEL CONTOURS (DB)
 (10 2000 HZ OCTAVE BAND
 (NOISE SOURCE/SUBJECT:
 (OPERATION:
 (AFTERBURNER POWER
 (100% RPM
 (SINGLE ENGINE
 (FREE FLOW
 (RA-5C AIRCRAFT
 (J79-GE-8C ENGINE
 (FAR FIELD NOISE
 (METEOROLOGY:
 (TEMP = 15 C
 (BAR PRESS = .760 M HG
 (REL HUMID = 70 %
 (PAGE 24
 (IDENTIFICATION:
 (OMEGA 1.4
 (TEST 75-002-002
 (RUN 04
 (05 MAY 75
 ()



**SOUND PRESSURE LEVEL {SPL}
EQUAL LEVEL CONTOURS (DB)
4000 HZ OCTAVE BAND**

10

IDENTIFICATION:
OMEGA 1.4
TEST 75-002-001

NOISE SOURCE/SUBJECT:

OPERATIONS

IFR POWER

RA-5C AIRCRAFT

100% RPM

100% RPM

100% RPM

100% RPM

0 METEOROLOGY:

TEMP = 15 C

BAR PRESS = .760 M HG

REL HUMID = 70 %

RUN 04

05 MAY 75

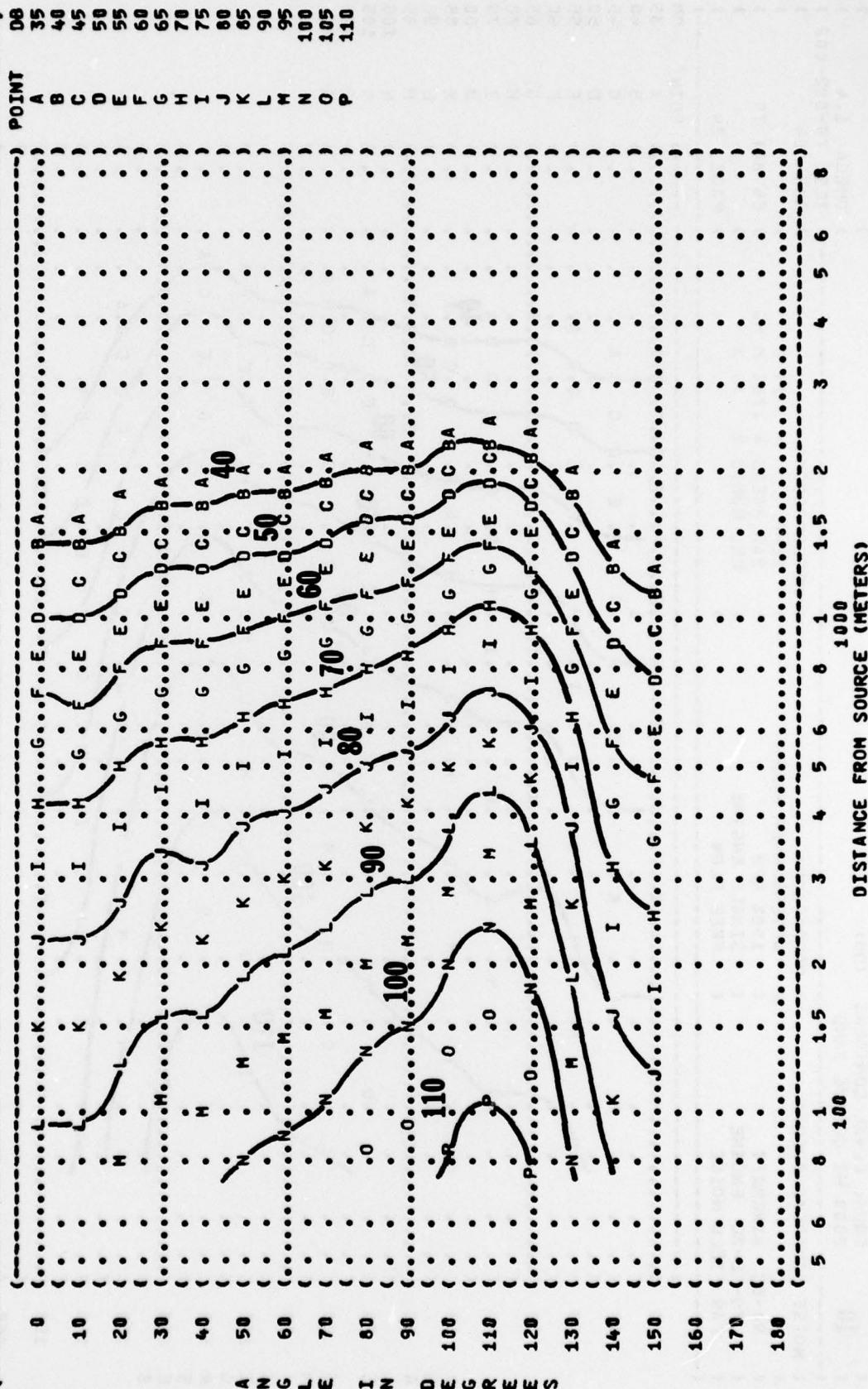


FIGURE: SOUND PRESSURE LEVEL (SPL)
 10 EQUAL LEVEL CONTOURS (DB)
 8000 HZ OCTAVE BAND

NOISE SOURCE/SUBJECT: (OPERATION:) METEOROLOGY:)
 (AFTERBURNER POWER) TEMP = 15 C)
 (100% RPM) BAR PRESS = .760 M HG)
 (SINGLE ENGINE) REL HUMID = 70 %)
 (FREE FLOW))

RA-5C AIRCRAFT
 J79-GE-9C ENGINE
 FAR FIELD NOISE

IDENTIFICATION:)
) OMEGA 1.4)
) TEST 75-002-002)
) RUN 04)
) 05 MAY 75)
))
) PAGE 26)

